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ABSTRACT

The three 1993 issues of the newsletter "Development Communication Report" focus on the use of communication technologies in developing countries to educate the people about various social issues as well as the field of development communication itself. Agricultural communication is the theme of the first issue which contains the following articles: "Development Support Communication and Agriculture: The Road Ahead" (Silvia Balit); "Mobilizing Villagers to Action: Communication for Agricultural Micro-Enterprises in Pakistan" (Frank Byrnes); "Women, Seed, Technology and Change: Communicating with Farmers in Senegal and the Gambia" (Tom Osborn); "Interactive Communication Strategies: Playing Games with Labor" (July Leesberg and Emperatriz Valencia); "Special Farmer Field Days in Kenya" (Anderson G. Mwaloma); "Sudan Rural Television (RTV): Communicating with Rural People" (M. O. Elsiddig); "Centers of Excellence: Building Agricultural Communication in India" (Royal D. Colle); and "Being a Good Communicator Doesn't Solve All of Extension's Problems" (Willem Zijp). The theme of the second issue is interactivity and learning technologies and contains the following articles: "People Based Interactive Instruction: A Workshop by Thiagi" (Sivasailam Thiagarajan); "Cutting Edge Multimedia Technologies: Promise and Pitfalls" (Janice Brodman); "Rethinking Interactivity: Lessons from Interactive Radio Instruction" (Jeanne Moulton); "Breaking the Ice: The Karate Kids Mixed Media Package" (Christopher Lowry); "Script Writing for Interactive Radio Instruction" (Esta de Fossard); "Interactivity and Soft Technologies: Peer Group Learning Systems" (Aida Pasigna); "Forum Theater in Burkina Faso: Paving the Way for Dialogue, Interactivity and Change" (Joy Morrison); and "Adult Literacy Is Important...But How Can We Use More Interactive Methods?" (Jose Carleton Corrales). Finally, multi-channel learning is the focus of the final issue which contains the following articles: "Expanding the Vision of Basic Education through Multi-Channel Learning" (Stephen Anzalone); "Multi-Channel Solutions: The Prospects of Open Secondary Education" (Paud Murphy); "Multi-Channel Learning in Focus: Project No-Drops and a Learning System for All" (Minda C. Sutaria); "Kenya's Rural Press Project: Bringing the Local Reality into Focus" (Usman Jimada); "Multi-Channel Learning in Practice: Case Studies from India, Costa Rica, South Africa and Bolivia" (Andrea Bosch); "Internetworking: Understanding E-Mail" (Mark Prado); and "Satellite TV Broadcasting: Looking to the Future of Educational Technologies" (Charles Morrow). (JLB)

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Development Communication Report

No. 80
1993/1

To Our Readers:

In response to the many requests of our readers, this issue of the DCR focuses on the changing field of **agricultural communication**. Many articles were submitted by readers and describe their experiences with development communcation and how it has benefited their projects. Other articles talk about the need for new ideas and innovative organization.

This issue also contains the biannual readers survey so that you, our readers, can continue to offer your insights and let us know your priorities. We look forward to your feedback.

—The Editor

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Development Support Communication and Agriculture: The Road Ahead

by Silvia Balit

We are living in an era which presents new trends and challenges to development communication practitioners. Today, everyone is talking about popular participation, decentralized decision making and sustainable development. It is more widely accepted that the ultimate purpose of development is human development and not only economic growth. Even the World Bank in a recent publication states that "More than natural resources, more than cheap labor, more than financial capital, knowledge is becoming the key factor of production."

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Mobilizing Villagers to Action: Communication for Agricultural Micro-Enterprises in Pakistan

by Frank Byrnes

A small group of rural development specialists working in the North-West Frontier Province (NWFP) of Pakistan has successfully employed communication strategies and skills to develop agricultural micro-enterprises among rural farmers.

Staff members of the Sarhad Rural Support Corporation (SRSC), a local nongovernment organization, listen carefully when they first ask villagers to identify and agree on their most critical needs relating to increasing agricultural or livestock productivity and improving general standards of living. Then they help organize dialogue leading to the establishment of viable local organizations to carry out community action.

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A changing field

This was not the case when Development Support Communication was established within the U.N. Food and Agriculture Organization (FAO) at the end of the 1960s. Development efforts concentrated on transferring western, industrialised technology to developing countries and treated communication as a trickle down of new ideas which would then be put into practice. There was little experience of using communication with illiterate populations for social change. Agricultural extension services saw the role of communication as limited to the production of media materials and the packaging of information from a central source. And perhaps most importantly, beyond the concept of communication, few governments in developing countries would provide the political space needed for true participatory communication.

Times changed. Over the years FAO implemented a series of field programs which led to a number of innovative approaches, taking into account the perceptions of rural people and more appropriate communication technologies. For example:

- In Latin America, an audio visual training methodology based on the use of video was developed for the large scale training of illiterate farmers. Educational programs were produced not only on agriculture, but also on health, nutrition, literacy, population, habitat and cultural themes. Attention was paid to culture and traditional technologies in order to provide information and training more in harmony with rural reality.

- In Africa, radio was used to reach large numbers of rural audiences. A participatory approach to radio was developed which enabled rural people to become the protagonists of the radio programs. Programs were broadcast in local languages and in accordance with local customs and values.

- In many regions, the use of multi-media communication campaigns to support a clearly defined development priority, such as the elimination of rinderpest in Africa or pest control in Asia, has become a successful strategy. Campaigns have combined interpersonal and multi-media channels in an orchestrated and mutually reinforcing manner. They have also used marketing techniques including audience research, formative and ongoing evaluation, message finetuning on the basis of feedback and individual and group psychology.

- But possibly the most successful example of an integrated FAO program occurred in Mexico. The Government's Integrated Rural Development Program for the Tropical Wetlands (Proderith) applied communication interventions systematically for integrated rural development. Strategies were used to involve communities in the planning and implementation of local development programs, to support transfer of technology and training activities, and to facilitate coordination and information flow among participating institutions. Now, the control of the communication system is being transferred to the farmers themselves. Young farmers, both men and women, are being trained to identify the needs of their communities and to produce and use communication materials with their communities autonomously. Messages are produced by the farmers, with the farmers and for the farmers.

Issues unresolved

Indeed, development communication has come a long way. However, we still have much to accomplish if the discipline is to be truly accepted by development planners and practitioners as a substantive component of the development process.

Finding DSC an institutional home. Perhaps the major issue yet unresolved is the identification of the most suitable institutional framework for development communication. Generally, development communication has been placed within the framework of a project, a develop-

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ment program, or a ministry. Each subject matter ministry has wanted to establish its own communication unit. This tack has proven to be expensive and has lead to duplication of investment in hardware and in personnel, especially for rural development programs that cut across and involve many sectors.

FAO's experience suggests that development communication should be classified as a sector at the national level which would support all the subject matter ministries, institutions and NGOs involved in development. Governments could then establish national communication policies and strategies and legislation governing the organizational location of national DSC Units, their responsibilities and functions.

National DSC Units could be established in national administrations in a location which would enable them to participate in situation analysis, program planning and the development of national communication strategies—either in a planning ministry or in the Office of the Prime Minister. National Communication Units would be able to work with all the partners engaged in development and provide valuable technical support.

Creating the incentives for funding. If development communication were established as a multi-disciplinary sector at the national level, it could also become eligible for investment and lending. To increase credibility, it is important to document and quantify the economic impact of development communication efforts, so that the communication sector could be considered as "bankable" and not only as a "soft" sector.

In Mexico, for example, the Proderith integrated rural development program has achieved an internal rate of return that is 7.5% higher than planned at a cost for the communication system of only 1.5% of the total project investment—all related to the activities of the communication system. This type of hard data is rarely available and articulated to policy makers and development planners.

Many extension projects fail to use basic effective communication strategies like this one for their illiterate clients.

Preparing DSC to be self-financing. Another important lesson learned by FAO recently in a number of countries (Mali, Nepal, Comoros and Nicaragua) is that communication units must be at least in part self-financing if they are to be sustainable. If they are not, once the international assistance finishes, the government is unable to continue financing the recurrent costs. This is especially true now that the effects of structural adjustment have limited the capacity of Governments to provide all the social services needed by rural areas. FAO is in the process of assessing the advantages of establishing non-governmental units with the ability to generate and retain revenue as a result of their services to pay for staff, training, spare parts, materials production, operational costs, etc.

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Using Video in the Field: Development Communication Guidelines by FAO

The Food and Agricultural Organization of the United Nations has recently published its guidelines for the use of video communication technology within FAO field projects in French, English and Spanish. This 68 page book includes information about how to integrate video into development projects and where to purchase cassettes and equipment. Written and illustrated in very simple language, these guidelines will be useful to anyone using or planning to use video. For more information about FAO development communication publications, contact: The Development Support Communication Branch, FAO, via delle Terme di Caracalla, 00100, Rome, Italy. fax: 5782610.

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FAO Guidelines for Development Communication Support

In June 1987, FAO organised an Expert Consultation on DSC to analyse the state of the art, identify directions for the future and formalise the FAO approach to communication for rural development. The following principles continue to be valid regardless of changes in development paradigms:

- Development communication is a social process designed to seek a common understanding or consensus among all the participants of a development initiative, and leading to joint action. The media are useful tools to help bring about this process, but their use should not be seen as an end in itself.
- Development communication must take into account the perspectives of rural people. A good communicator must first and above all know how to listen. Time must be taken to consult with the intended actors, and to learn from them.
- Social change, social engineering and education take time. The duration of DSC components in development projects or of communication projects themselves must be sufficiently long to obtain sustainable results, demonstrate their impact and create an institutional base.
- Successful development communication calls for a well defined strategy, systematic planning and rigorous management.
- A systematic use of communication also requires a holistic approach covering the many aspects of life in rural areas.
- Communication for development must be incorporated in the planning stage of development programmes and not tacked on at the last moment as an afterthought.
- Broad based, integrated communication strategies, using all possible channels in an orchestrated fashion will give better results than relying on one medium only.

Preparing staff for a new era. The lack of personnel specifically trained to carry out development communication functions constrains development efforts. This new kind of professional requires training in the social sciences, development issues as well as the art and craft of communication media and technology. Training programs are required at the technical/intermediate level, and importantly, at the graduate and post graduate university levels. The lack of sufficient academic institutions to provide training results in an inadequate supply of properly qualified DSC professionals to meet the increasing demands for this discipline. Appropriate development support communication curricula must be formulated and included in the programs of studies of existing academic institutions in developed and developing countries.

Creating information sharing systems. Finally, it is important to overcome the age old boundaries between research, extension and communication. To respond to new development paradigms, new agricultural information and knowledge sharing systems which place the farmer first, and enable rural people to place their needs before researchers, extensionists and other services, are required.

Development communication can play a fundamental role by promoting information exchange between farmers concerning their problems and needs, and bringing the results to the technicians and the policy makers. All the parties in the farmer-extension-research continuum could act as communication equals, and communication would act as a kind of blood line for the new system, facilitating the flow of information and sharing of knowledge and skills.

If development communication is to become part of the new mainstream of development, it will require some innovative thinking, more field testing of new ideas and theories, and more qualitative and quantitative evaluation of results. It is a challenge which none of us can ignore. ■

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Through these groups—men in village organizations (VOs) and women in women's organizations (WOs)—local people define and set priorities on needs and establish savings and credit programs that help them finance necessary actions.

When a VO or WO decides on a productive investment project, SRSC personnel, with active villager participation, may conduct technical feasibility studies, collect relevant data, design the project, and monitor implementation. But it is the village men and women who implement, operate and maintain the projects.

SRSC management recognizes the critical role each staff member plays in establishing rapport with villagers, in counseling them, and in avoiding the development of dependency. SRSC recruits staff carefully, trains thoroughly, and coaches continually. Staff members agree that a successful worker listens patiently, communicates clearly, and is informal, open, friendly, self-confident, empathetic, willing to share, positively critical, relevant and respectful—all in one.

Creating Credit Internally

Despite the need to go slowly, SRSC has made considerable progress since helping to form the first VO in October 1991. In August 1992, 122 VOs and 37 WOs were operating. The savings pools of these organizations had reached a total of Rs 2,336,996 and were increasing rapidly. The associated credit pools had provided 45 organizations with 59 short-term credits for distribution to 1,363 beneficiaries. Most credit was used to buy agricultural inputs.

During this period, SRSC had trained 260 VO leaders, 72 WO leaders, and 197 agriculture and livestock extension workers (individuals selected by the villagers, those benefiting paying for services received).

Each village offers exciting examples of how rapidly and effectively villagers respond and mobilize.

Men and Women Working Together

While the experience is unique, in Purdil Khan Kaley, the VO and WO are working together. Most of the land in Charsadda District is fertile, yet almost half of the land in Purdil Khan Kaley, about a 45-minute drive from the bustling town of Charsadda, was not cultivated because the soil was saline. When the villagers formed a VO, they agreed that treatment of the soil was the priority task to undertake.

SRSC provided a grant to finance treating the saline land with gypsum and to install a tubewell for irrigation. Once the land was in cultivation, the VO found new initiatives. SRSC helped train two extension workers (one in livestock, the other in agriculture) and established a credit of Rs 80,000 to cover various VO activities. Now, the credit has been repaid in full.

Turkha villagers stand in line to make monthly deposits to accounts which can be used either individually or collectively.

The interaction of the SRSC Women in Development (WID) staff with the women of Purdil Khan Kaley produced the most significant change in this conservative village. The WO decided to start a dairy enterprise by buying buffalo on credit. As a condition of SRSC support, each WO member was asked to save Rs 3,000. With some contributions from the men, the WO achieved their goal.

As operation of the dairy would necessitate finding markets outside the village, the women included men in further discussions relating to the dairy. This was the first instance in the village of men and women working together.

It was further agreed that the men would supervise the purchase of buffaloes and other inputs, reserve land for fodder, and sell the milk. The women would tend the animals and do the milking. The recently trained livestock extension worker provided women with basic training on health care of buffaloes. The training, conducted at a nearby government farm, was the first case of women travelling outside the village for a development activity.

Recognizing the possibility of deaths among the buffalo herd, the women initi-

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ated a self-subscribed insurance scheme on which the WO members could draw to replace a dead animal.

The WO, with income from sales of milk, already has begun to pay back the credit advanced for the purchase of the buffaloes. With the dairy now operational, it is estimated that the WO earns a net profit of Rs 600 per member each month. Meanwhile, the women have decided the buffalo shed built with a SRSC grant is too small and have on their own initiative begun constructing a bigger shed.

Priorities: Irrigation and Cash Crops

Ongoing activities in Menda Khel, the first village in Kohat District to form a VO, demonstrate what happens when rural villagers discover the potential of working together, earning and saving income, acquiring knowledge and skills, and obtaining credit.

Of the total village land of 4,430 acres, only 125 acres were irrigated and 591 acres rainfed. Much of the uncultivated land could produce crops if water were available. When the government gave the village an old lift pump installation, its renovation along with construction of a concrete-lined channel to carry water to irrigate 100 acres inspired VO interest.

This roster keeps track of how much money is borrowed and paid back.

With a SRSC grant of Rs 167,000, the VO purchased a motor and pump and a generator (to supply power when electricity would be out), constructed and cemented the channel, and built a small bridge. Rs 5,000 of the workers' wages went into savings.

The VO secretary cites the following benefits to the village: (1) the irrigated land grosses Rs 300 daily from vegetables produced; (2) with irrigation, the land produces three crops a year instead of two; (3) villagers are taking loans to improve farm production; (4) the VO plans to establish a commercial wholesale market for fresh vegetables, and (5) discussion is underway about building a causeway across the valley to connect four other villages to broaden the production and marketing area.

Women Buy Goats and Chickens

Pershai I, a small hamlet in the arid belt of Kohat District, reports a variety of activities fostered by its WO of 40 members. Motivated by the prospect of increased income, the women raised Rs 12,000 in savings in the first 3 months, which they used as collateral for a SRSC loan to purchase milk goats.

With SRSC help, the women obtained a hardier strain of poultry. These scavenging birds require minimum care, are resistant to disease, and produce more eggs, a regular source of income. One woman, selected by the WO, was trained in how to inoculate poultry. Now she provides this service on a pay basis.

Successful introduction of kitchen gardening also led to a demand by all women for seeds the second year. Two women established commercial vegetable plots. In the same year, three women obtained loans to invest in such off-farm enterprises as sewing shops and a grocery store.

Present plans of this active WO include tackling the problem of scarce drinking water by constructing new water tanks, establishing a vocational center to teach sewing and embroidery skills, and obtaining training for women in livestock management.

These and related experiences in other villages encourage the SRSC staff to look ahead with confidence, excitement and professional dedication. As an organization which measures its success by a community's ability to function productively without SRSC intervention or support, it will concentrate on how it can communicate effectively with these groups and withdraw as quickly as possible. ■

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Women, Seed, Technology and Change: Communicating with Farmers in Senegal and The Gambia

by Tom Osborn

Private voluntary organizations (PVOs), non-governmental organizations (NGOs), and the Peace Corps are increasingly concerned with how to reach women farmers. Historically, national agricultural policy, extension and technologies have focused on male farmers and cash crops, largely ignoring female farmers who, in Africa, have primary responsibility for food production and family food security. As a result, many agricultural projects have not had the anticipated impact because they do not reach the family's primary agricultural decision-maker—the woman.

In many parts of Senegal and The Gambia, rice is exclusively cultivated by women and produced primarily for home consumption. Extremely labor intensive, rice production involves land preparation, seeding, weeding, and harvesting with simple hand tools. Women cultivate small plots, .5-1 hectare, that yield a meager 300-1,000 kg per hectare in ecologies that range from upland to paddy (submerged during the growing season).

Effectively communicating with women in agricultural extension activities involves consideration of various factors. First, extensionists must understand the role of women as agricultural decision makers and assess, respect and build on their indigenous agricultural knowledge. Secondly, in most areas, women have low levels of literacy, which means that written communication strategies are not appropriate and demonstrations must be used primarily. Lastly, male extension agents have worked only with male farmers and have used a directive communication approach. To work with female farmers, extension agents need to learn, to listen and to carefully communicate in order to understand their particular needs and situations.

Creating agricultural projects which benefit women farmers challenges existing extension programs. A few innovative agricultural projects, however, are finding ways to integrate programs into women's complex web of daily activities including childcare, domestic tasks and cultural obligations. Most of these are using communication approaches which stress participation.

The On-Farm Seed Project

The On-Farm Seed Project (OFSP), has been in operation for the past five years in Senegal and The Gambia and uses participatory methods with farmers to promote the adoption of improved methods of seed production, harvesting, processing and storage. The project goal is to increase yields and reduce labor. The OFSP is implemented by Winrock International in cooperation with the Center for PVO/University Collaboration and Mississippi State University. Field activities are carried out in collaboration with the Peace Corps and NGOs (Save the Children, World Vision, Christian Children's Fund, Freedom from Hunger Campaign). OFSP rice activities have taken place in more than 100 villages with thousands of farmers, primarily women. The project aims to identify technically sound changes that fit with both sociocultural values and farmers' resources. While the OFSP primarily focuses on seed, it uses a systems approach which considers other factors related to how seed and food grains are produced, such as the division of labor along gender lines, labor constraints, communication between farmers and researchers, and cultural factors.

Women farmers have responsibility for food security in many areas worldwide.

A Participatory Approach

The aim of agricultural extension has traditionally been to disseminate predetermined practices and technologies identified by agricultural researchers and communicated to farmers in a one-way and top down fashion. The OFSP approach, on the other hand, involves dialogue with farmers and assessment of traditional production systems before modified practices or technologies are identified and promoted. In the participatory approach, the role of the extension agent is no longer merely to "transfer technologies" but

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rather to facilitate a two-way exchange of information and priorities between extension agents and farmers.

Improving farmers' practices is viewed as a long-term process which involves promoting small changes, step by step. For example, initial attention is often focused on promoting one improved seed variety along with a few modified practices that will increase production. Farmers only adopt new varieties and practices which they have observed and believe are advantageous. Only when initial changes are adopted are other changes proposed. The farmers determine the direction and pace of change.

The process used by the OFSP involves:

a. determining farmers' problems, needs and resources;

b. developing participatory farmer demonstrations; and

c. soliciting farmers' reactions to demonstration results.

Step 1. Determining farmers' problems, needs and resources. The OFSP began the process by training the extension agents of collaborating NGOs in rice agronomy and community data collection. Information was gathered from women farmers through group discussions conducted by field staff of collaborating organizations, and observations by both the extension agents and the OFSP agronomist. The OFSP agronomist discussed the information collected with the collaborating extension agents to verify technical aspects.

The data collection with farmers indicated, for example, that traditional seed varieties are not adapted to the recent drought conditions. Another finding was that rice is traditionally broadcast seeded (as opposed to row seeded) and this practice results in the proliferation of weeds which rob the rice of light, water, and nutrients and contributes to reduced yields. Conclusions? Following the data collection, OFSP staff concluded that farmers could potentially increase their yields by using earlier maturing varieties and changing to row seeding.

Step 2. Participatory farmer demonstrations. Demonstrations are the best way for farmers to understand proposed innovations. They also allow field agents to see how farmers adopt or adapt the proposed changes and to observe differences between farmers. Finally, if demonstrations are a success, participating farmers can perform extension activities themselves.

The OFSP assists its collaborators in the design and implementation of the demonstrations. Workshops coupled with field visits were conducted with the extension agents and program managers before and during the implementation of the demonstrations. The workshops are a way to monitor the demonstrations, to conduct discussions directly with the farmers, and to improve the technical skills of the field staff.

Experience suggests that for a demonstration to be successful it must be similar to/based on what farmers already do, require comparable or less labor than prior practices, and provide a noticeable yield increase (20%) or other benefit. Unless farmers perceive substantial benefits, they will return to traditional practices.

In the OFSP, demonstrations are conducted so that farmers and extension workers can together compare traditional varieties and practices with improved varieties and modified practices. The extension agent assists the farmer to select the demonstration plot, explains the changes in practices and works with her in the demonstration plot. The agent collects data along with farmer feedback on the demonstration plot as well as on one of her traditional plots in

order to compare results.

Step 3. Soliciting farmers' reactions to demonstration results. The third and critical step is soliciting the reaction of the women to the demonstrations. Their feedback is the best indication of the appropriateness of the modified practices. What did they like about it? Was it difficult? Are they willing to be involved in another demonstration? Did the demonstration generate interest among friends and neighbors? Feedback from women farmers helps the project decide which practices should be promoted the next season.

Lessons learned

Participation is essential. These activities confirm the importance of a communication approach which emphasizes the active participation of farmers in the entire process of testing and evaluating new agricultural practices. Two-way communication allows extention agents to understand farmers' priorities, constraints, gender roles etc. and it allows farmers to learn about alternative varieties and practices.

Sustainability and long term impact of development projects is determined not only by their technical content, but also by whether the communication process focuses on one-way technology transfer or on a participatory problem-solving with farmers.

Farmers are receptive to innovations if they are appropriate to their conditions and resources. The process of change takes time. For example, in Save the Children's work in the Gambia, it has taken five years for farmers to adopt improved varieties and to use animal traction. Women were gradually able to persuade the men to help them plant rice in rows with animal traction. This is a dramatic change from traditional roles and practices in rice production, but it took time.

When there are options, acceptance grows. The collaborating organizations offered women rice farmers alternative technologies and approaches which could improve their production. By proposing a number of options, farmers can choose to adopt or adapt suggested changes based on their personal needs and the rice ecology in which they work.

Participatory demonstrations provide concrete evidence. The demonstrations provided many benefits to the women participants. They were able to try new varieties, alternative seeding methods, and modified production practices. They retained the seed from the demonstration plots to plant the following year for themselves and to share with others. Following the demonstrations, it has been observed that in many cases the new varieties and practices have been diffused to other women through traditional communication networks by participating farmers.

Collaboration among organizations strengthens the effort. The OFSP has helped the collaborators to improve their technical skills and their capacity to use a participatory approach in extension activities. In addition, the OFSP has helped link the collaborators to new rice technologies for testing in the field.

Program strategies should draw on both technical and field resources. OFSP incorporates a collaborative effort which uses the strengths of many organizations. The project has benefited from the leadership of Winrock International and the technical knowledge provided from the Seed Technology Laboratory of Mississippi State University and from the field knowledge gained from NGOs and Peace Corps Volunteers working with farmers in both countries. The Center for PVO/University Collaboration in Development, based in North Carolina, USA, provides valuable collaborative support.

Much remains to be done to ease the labor burden of women in rice production and increase their productivity. The On-Farm Seed Project in Senegal and the Gambia demonstrates that through a participatory process and communication, agricultural information and strategies has a far better chance of reaching women farmers.

■

Tom Osborn is Project Leader of the On-Farm Seed Project. He can be reached at B.P. 3746, Dakar, Senegal. For more information on the On-Farm Seed Project, which is now in its second phase as the On Farm Productivity Enhancement Program (OFPEP) contact the Center for PVO/University Collaboration in Development, Bird Building, Western Carolina University, Cullowhee, North Carolina 28723-9056, USA. Tel: (704) 227-7492. Fax: (704) 227-7422.

Many agricultural projects have not had the anticipated impact because they do not reach the family's primary agricultural decision-maker — the woman.

Interactive Communication Strategies: Playing Games with Labor

by July Leesberg and Emperatriz Valencia

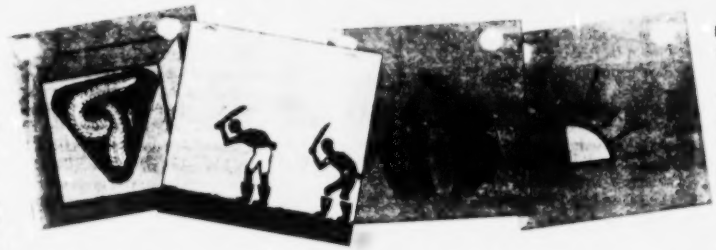
Understanding patterns of labor investment as well as the changes caused by the introduction of a new technology, are crucial for a better understanding of farmers' reasons to adopt, adapt or reject technology. In complex production systems these patterns are often difficult to unravel. The DIAR project (Desarrollo Integral Agricola Rurali in Colombia developed a simple but reliable method to register labor allocation patterns of small-scale producer families. It is a self-registration system, specifically developed for the illiterate target farmers of the project. This system enabled the project to obtain quite precise information from 17 target families over a period of six months. It enabled the families concerned to reflect on their own production strategies, and they said it was fun to play this "registration game".

The DIAR project, initiated by the Dutch and Colombian governments, tried to generate and work with a flexible model for integrated rural development in a rainforest area in Colombia. The Choco is a poverty-stricken area dominated by its river systems and rain forest ecology. The main sources of livelihood are fishing, animals, and mining (gold, platinum). The principal objective of production is to guarantee the continuation of the family. Making profit is important, but not the driving force of productive decision-making.

How to register labor

To better understand the complex production systems in the decision of labor by gender, crop or specialized activity, the project researchers carried out a study which focused on labor allocation: how do members of the families divide their time over the various productive and domestic activities during different seasons? Obtaining such information would help the project to get a better idea of the possibilities and constraints farmers faced with regard to the new rice technology the project was introducing. It was decided to concentrate on the major agricultural season since the project's activities coincided with the productive activities in this period of the year. A registration method had to be developed which would be attractive to the target population, so that they would be motivated to continue registering during several months.

The idea came up to develop a "registration game" which people could operate themselves. Three things had to be measured: male, female and child labor, type of labor, and quantities of produce used and obtained. Investigations were initiated to find out what could be used as the unit of time, what kind of logic the local games used, and how people interpreted drawings. The project artist went along to show drawings and to ask what people saw, and conversely, to ask people to draw figures so that he would understand the perceptions of the target group.



How the game worked out

Seventeen families participated in the six month registration exercise. The game players were enthusiastic: they immediately recognized the images and they liked the colors. They also liked to see their activities shown on the board. Once a week they were visited by a research assistant of the project. These assistants copied the data registered on the board on forms, designed to introduce the data into the computer.

Cross checking with other methods of labor data collection (observations and interviews) showed that this method was highly reliable and that it was particularly suited for obtaining data on repeating activities, like perennial agricultural cultures, fishing and domestic activities. These activities are not remembered in great detail and are therefore more difficult to register with other methods, like, for instance, interviewing.

Better insights

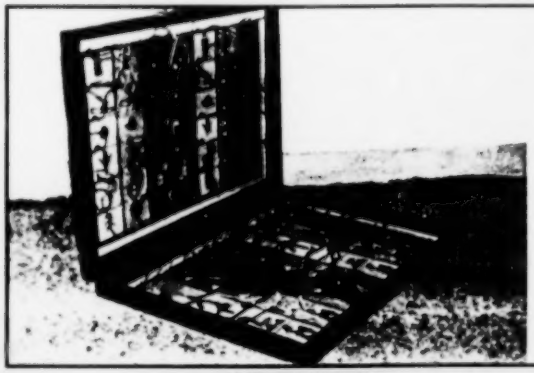
When they evaluated the game, the participants explained that after a while men had given up playing, leaving their wives and children with the registration job, which added to their daily obligations. Men remarked however that they had never realized the amount of work women had to do. Only now, that the cards were fixed on the board, they had learned the enormous efforts that women had to exert each day. Children tended to increase their activities like fetching water, because they were eager to see themselves represented on the board. The game generated valuable discussion, both among the families who played it and with other people in their communities. It helped them to get a better idea of their own production strategies. It also improved the discussion between the farmers and the researchers. Researchers gained a more detailed understanding of the logic of these complex production systems, the priorities of farming families and the labor organization within and between families. ■

Excerpted from ILEIA Newsletter for Low External Input and Sustainable Agriculture. 450 July Leesberg can be reached at the International Agricultural Center, P.O. Box 88, 6700 AB Wageningen, the Netherlands. Tel. 31-8370-18552 and Emperatriz Valencia can be reached at Lohgerstrasse 3e1, App. 326, 2000 Hamburg, Germany. Tel. 49-40-412-0270.

The Labor Registration Game

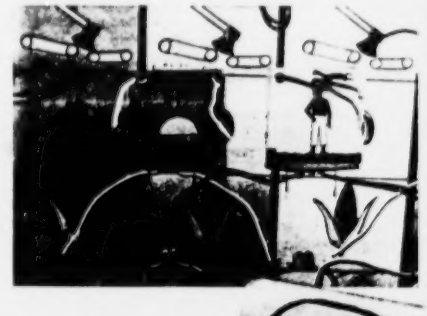
The game is contained within a portable case with handgrip with a colorful water resistant board game inside. On the board, images of the prevailing domestic and agricultural activities are drawn, each one in a box. The activities are placed in vertical lines underneath each other, repeated seven times, but in different colors. Each vertical color line represents a day of the week. Each box on the board contains a wire, on which playing cards can be fixed. This prevents the playing cards from getting mixed up during travelling.

There are three sets of playing cards. Blue cards for time investment, yellow cards for types of labor, and orange cards for quantities of sowing materials and agricultural product. Each card is laminated and can be attached to the board by sticking a wire through two holes in the card.



The Rules of the Game

- Time investment has to be registered at the end of the day, by each member of the family separately.
- Registration is done by combining one card representing time span, one card for sex age type of labor, and if necessary, one card for quantity.
- This set of cards is to be fixed to the corresponding activity at the corresponding day of the week on the board.
- Once each member of the family has registered his or her activities, the wires are closed and the game can be put away until the next day.



To use the board game, first put a card representing time investment on the wires of the concerning activity. Then add a card representing sex/age type of labor. Close the wires.

Special Farmer Field Days in Kenya

by Anderson G. Mwaloma

Subsistence farming and pastoralism provide a livelihood for an overwhelming majority of Kenyans. Government and nongovernmental agencies have used extension services in an attempt to change century-old production practices for years. The Kenyan government also provides basic infrastructure such as local level farmers' training centers and research and demonstration stations around the country to help update rural Kenyans on time and money saving technologies.

Unfortunately, only those farmers with better educations and access to credit facilities appear to embrace agricultural innovations. They are the ones who try new techniques and have made a break-through in their farming operations. They appreciate the benefits of applying improved techniques because they see through experience that the gains justify the risks. Rather than wait for extension personnel to preach to them, they go out to seek for professional advice and, if necessary, they pay for it.

Still, the majority of the population rejects anything other than the most traditional of agricultural practices. Like their more progressive counterparts, extension services have reached them and they are aware of modern farming techniques either by observing demonstration plots or through the media. Why, then, do peasants cling to the hand hoe for tilling the land and burn the cow dung rather than use it to fertilize their barren fields? Why are the pastoralists reluctant to cross-breed their traditional livestock with improved stock for better milk or beef yields?

These are difficult questions to answer as they require more than a mere change of attitudes or a provision of credit facilities. The information and means to adopt to new practices are either not realistic to these farmers or the information is not presented in a meaningful way.

Special Farmers' Field Days

To combat the lack of change, The Agricultural Development Corporation (ADC), a Kenyan government-owned institution responsible for the production of improved seed and breeding stock for Kenya, decided to play an active role. ADC personnel created a multi-faceted communication program using special field days aimed at an identified audience.

ADC farms do not enjoy any special preference either in input prices or marketing—in fact, while government-owned, these farms operate as individual entities and must justify their existence by undertaking enterprises as efficiently as possible. In close liaison with the field staff of the Ministries of Agriculture and Livestock Development, ADC decided to stage special field days at farms all around Kenya to show the success of certain practices. In contrast to traditional predesigned field days, which are open to the general public and are often characterized by political speeches, ADC special field days were designed to provide a forum for practical interactive learning.

First, attendance is by invitation. Farmers who confirm are required to meet part of their travel costs to and from the field day site. This eliminates joy riders.

If the main focus is on horticulture, for example, the field officers identify and contact small scale farmers in their respective areas who have been undertaking horticultural enterprises in a traditional manner. Then, they plan the field day on the nearest ADC horticultural farm.

As a rule, the demonstration plots are not specially prepared. At the start of the event, farmers are taken around to the relevant enterprises and the farm manager responsible gives an explanation about key aspects such as land preparation, husbandry practices, or harvesting and marketing.

Extension officers accompanying farmers are always present to relate any display or explanation to the actual situation facing his fellow farmers back home. Farmers are given opportunities not only to ask questions, but also to share with others their own personal experiences.

The ADC special farmers' field days are supported by other media programs such as 'Participation in Agriculture' dramatic shows. From time to time, the Corporation produces special feature programs on farming which are broadcast on the National Radio and Television stations.

Success of the Field Day Program

When ordinary subsistence farmers or pastoralists attend large agricultural shows or visit display-models of demonstration plots, they often interpret the achievements as being beyond their capabilities. The ADC special farmers' field day program, on the other hand, has yielded tangible benefits. In a follow-up of past participants chosen at random, the level of acceptance of new practices has improved. Why? Evidence shows that while extension services and public education programs are crucial for creating awareness, special field days provide tangible examples from peers much closer to the farmers' real world. The success of the ADC farmers has meaning.

Get the Most Out of Radio Interviews

Because the interview involves entertainment through storytelling, it is one of the most effective means of communication on the radio. In preparing to do an interview, you must know what story you want to tell. Through research, you can decide on the main idea the interview is to communicate and structure your questions so that they relate to the topic. The following tips can help the interviewer reach the audience through the story his guest tells:

Put the interviewee at ease. Before the interview starts, have a general chat with the person to help create a relaxed environment. Talk about the person's surroundings, office, family or daily work. Focus on positive things.

Explain your objectives. Before you start, list the points that you plan to raise during the interview. Interviewees will be more comfortable if they know what kinds of questions you plan to ask and they will be more focused.

Handle your microphone and tape recorder properly to get the best sound. If you or the person you interview are too far away from the microphone, your voices may sound distant. Being too close will cause distortion.

Do a sound check. Make sure that your equipment is working properly and that you are placed within the proper range of the microphone. Record a short conversation between you and the interviewee and listen to it.

Avoid distracting background sounds. Appropriate natural background effects will enhance an interview. However, beware of obstructive sounds such as ticking clocks, ringing telephones, and yelling children. Any of these could spoil the interview by diverting the listener's attention from the subject matter.

Control the equipment. If you allow the interviewee to hold the microphone, it will be more difficult to control the discussion.

Ask questions which demand more than a yes or no answer. Make interviewees explain their points of view. For example, instead of asking "Do you like this method?" ask "what are the advantages of this method?"

Ask one question at a time. If you ask too many questions at once, the interviewee may respond to all of them with one generalized answer, or become confused. Prepare an outline of ideas in advance.

Understand the answer. If you do not understand the answer, neither will the listener. Request definitions of technical terms that listeners may not know.

Do not allow scripted answers. Interviewees will not sound as interesting of convincing if they read prepared answers. Suggest that they write down only the main points, If interviewees answer your questions with prepared statements, stop the interview and ask them to put their notes aside. Tell them if they find they have missed an important point, you can always record their answer again. ■

Adapted from the United Nation's Training Manual on Farm Broadcasting: a guidebook to basic radio programme production for agricultural extension workers *by Voices: Developing countries Farm Radio Network. This article appears in Voices, nos 24/25, March 1992. The manual is available in English, Vietnamese, Thai and Korean and a Khymer version is being prepared. For information, write: Agriculture and Rural Development Division, ESCAP, United Nations Building, Rajadamnern Avenue, Bangkok 10200, Thailand.*

The Developing Countries Farm Radio Network is an information exchange network for rural communicators in developing countries funded by the Canadian International Development Agency and donations from the public. It supplies simple, practical, information aimed at increasing food supplies and improving nutrition and health at the grassroots level. Network participants receive packages of radio scripts four times per year in English, Spanish and French. There is no charge for this service, but participants are asked to comment on each package and suggest script topics. For more information, contact: 595 Bay Street, 9th Floor, Toronto, Canada M5G 2C3, fax: (416) 593-3820.

The proof is in the behavior change. While Kenyan pastoralists have long been aware of the existence of improved bulls, especially those suitable for semi-arid areas of the country, many did not consider it worthwhile to come to ADC. Yet, in one example of success, selected pastoralists who participated in a recent ADC special field day for ranchers were placing large orders for Boran breeding bulls soon after the event. Demand for the high grade dairy has now exceeded supply as farmers who have witnessed the high milk yields during field days sell their traditional cows to buy higher grade cows.

The demand for other products has also increased. ADC has some of the best trained farm management personnel in the country and yet for many years its farm gates remained closed to other farmers. Before the introduction of the field days, the ADC farms were preoccupied with producing quality seed to meet the nation's demand and to export to neighboring countries. Supply of quality seed was more or less limited to the established users. But with the opening up of the farms, demand has been escalating. Now extension officers whose main job is to educate the farmers come to find out how ADC managers deal with every day farming problems. Farmers and extension officers who were reluctant to attend the initial field days now look forward to these and other events. In between field days, we receive numerous inquiries from the field officers wishing to find out when the next one is scheduled. ■

A.G. Mavaloma is the Public Relations Manager for the Agricultural Development Corporation. He can be reached at P.O. Box 55916, Nairobi, Kenya.

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Sudan Rural Television (RTV): Communicating with Rural People

by M.O. Elsiddig

In many ways, the Gezira province of Sudan had an ideal environment for an experimental agricultural communication project: it was in a state of flux due to the diversification of crops away from cotton/sorghum and towards wheat, rice and groundnuts, women had a clear amount of free time, it had a high rate of urban migration of young people, an uneasy relationship between farmers and management and a low percentage of literacy among adult farmers — which aside from being a problem in itself, was affecting the level of agricultural production in the area.

A well defined and well managed area with a relatively homogeneous population, the Gezira province was also more developed than many other areas in rural Sudan. Gezira had basic support services in agriculture and education and while several organizations were involved in development work, little or no collaboration was occurring. RTV could help provide an integrated educational program which related the different facets of rural development to each other.

The initiative to promote economic development for the Gezira farmers through an interactive series of rural television shows and viewing clubs came from the Ministry of Culture and Information, with technical assistance from the Federal Republic of Germany, British Aid and the Food and Agriculture Organization of the United Nations. By 1974, a staff had been found from the Ministry of Education School of TV Producers and the Sudan Rural Television project blossomed in the Gezira province.

Making TV relevant to the lives of the Sudanese audience helps to ensure that messages will be absorbed.

Preparing for Exposure

Research with the farmers and from people who had been working in Gezira for a long time — doctors, agriculturalists, extension officers, teachers — resulted in three main criteria. Sudan Rural Television (RTV) was to be:

- a source of educational information;
- a catalyst for activities among farmers; and
- an example for other rural regions in Sudan.

By the end of 1975, RTV was established as a part of the educational programs division of Sudan TV. The time table and the programming format were made flexible to suit the daily and annual activities of the villagers. Some TV programs were constructed in a magazine style to follow the calendar of agricultural activities. Others concentrated on special subjects in a systematic way, such as a series about preventive health measures, new agricultural methods or new ways to build houses using local materials. Special programs such as social shows, dramas and other forms of entertainment were also included to contribute to program effectiveness.

Audience support, evaluation and operations

Audience support is divided into two distinct operational levels. The Madeni TV station is responsible for program production, and the TV Liaison Office ensures that messages get through effectively to the audience. This dual process allows the production team to concentrate on creating suitable programs and appears to be giving the monitoring and evaluation functions sufficient independence and power to affect programming.

The role of audience support of the rural TV Liaison Office is perhaps the most interesting aspect of the project. With the overall purpose to monitor and evaluate audience reaction to programs, it performs a diver-

sity of activities. It installs TV sets and generators in selected villages, trains the TV club monitors (discussion group leaders) in how to conduct discussion, communicates with evaluators and operates equipment. It also prepares program support materials, such as posters and brochures, for distribution to villages.

TV viewing clubs and behavior change

Discussion and planned action are the keys to any participatory project. For RTV, the vehicle was TV viewing clubs. To ensure participation, formal conditions were set in exchange for receiving TV sets and generators at half price—women must be allowed to watch and TV viewing clubs must hold organized discussions after programming.

In the early 1980s, 300 TV viewing clubs were created to discuss the issues raised in the program and arrive at suitable action, when the viewers felt the topic affected them. Everyone was invited—although the discussion group is limited to between ten and twenty individuals. When a scheduled topic related to a particular village's needs, villagers selected a representative to attend a more influential viewing club.

All discussions were supported by pamphlets and other materials to highlight key points In every case, however, the group controlled the nature of the discussion internally. At the end of each session, group members contributed their feedback and preferences for future programming.

RTV has changed the way TV programming works in rural Gezira. Now, the same organizational structure is being used to establish a second rural TV station in Albra, the capital of the Nile province. Here, the audience consists of workers, so the programming emphasis is on occupational health, vocational and technical training and functional literacy. Development is also under way to consolidate All-Sudan Centralized Regional TV channel programs to serve the different needs of other groups of rural people.

Overcoming constraints: making TV homegrown

The project does not function without constraints. Producing suitable programs is always an issue. In the Sudan, the distinction between urban and rural is widely felt both socially and attitudinally. Traditionally, most rural people are conservative and resistant to change. Television with its advanced technology does not affect their daily lives unless it is made a part of the community, describes their activities and emerges from rural attitudes and social patterns.

To reflect the rural setting, the production should be field rather than studio oriented. For example, portable equipment which can be used in the field is preferable; producers and staff should develop deep interest in the life of the rural people and, if possible, come from a rural background; and women should be encouraged both to watch and contribute to discussions.

Financial constraints are also real. RTV can afford very few permanent producers and equipment has not always been in top condition. While this can affect the quality of the programming, the producers have made great efforts to produce quality programs and collaborating organizations have contributed time and interns. With part-time staff and the pressures of weekly shows, many of the programs can easily lose their reality to rural viewers and, in turn, their educational value.

In the Gezira region, TV programming has acquired new meaning for rural farmers and their communities despite the many obstacles. Using the strategies of well coordinated TV viewing clubs and activity-provoking discussions, RTV programming is now carrying social messages, information and behavior change to areas typically neglected by the media. ■

Dr. Mukhtar O. Elsiddig is the Director of Research and Publication Department at the Sudan Academy for Administrative Sciences and one of the founders of Sudan Rural Television. He can be reached at: P.O. Box 2003, Khartoum, Sudan.

Criteria for Success

Experience at RTV suggests that rural educational programs can be successful and effective only if:

- **they are produced locally as a result of locally felt need and presented to an organized audience;**
- **they are supported by a variety of communication methods, so TV is used as the main medium but supported by printed materials, films, discussion, etc.; and**
- **additional educational assistance which incorporates two-way communication is secured for the rural audience.**

CORRECTION IN MANOFF ARTICLE!!

The key question and central theme of the article, *Have We Become Surrogates for Failure?* by Richard Manoff found on page 24 of DCR no. 79, can be summed up in the following short paragraph: As development communication professionals, are we a misnomer? Can such unsatisfactory outcomes be justified when they result from development efforts that may have been foredoomed? Are we, too often, unwitting surrogates for failure?

Unfortunately, a valuable phrase was left out of the article which resulted in a change of the meaning. The final sentence in the sixth paragraph should have read, *These are circumstances peculiar to Mauritius—but we can extract the simple intelligence that no country can provide "equal opportunity" without the means to build a capital base for internal development.*

For an accurate understanding of the article, please add the above short paragraph and the corrected sentence to the article. Richard Manoff can be reached at: tel: (212)758-7710; fax: (212) 751-1786.

Centers of Excellence:

by Royal D. Colle

The amount of communication research at the G.B. Pant University of Agriculture and Technology in the state of Uttar Pradesh has increased significantly over the past six years. New research programs have emerged around major topics such as how to communicate with hard to reach groups such as marginal farmers and women, and how to create profiles of Indian villages based on anthropological research. Evidence suggests that this burgeoning capacity is the result of a stronger faculty and communication units developed to link researchers and farmers — both the direct consequence of a six year institution-building project conducted by the Indian Council of Agricultural Research with support from the United Nations Development Programme and the Food and Agriculture Organization.

In the 1980s, the Indian Council of Agricultural Research embarked on a long range plan to build "centers of excellence" in various agricultural research areas in India ranging from post harvest technology to poultry science. The centers were generally located at the state agricultural universities (SAU) and were the central part of the nation's Post Graduate Agricultural Education Program — a program designed to help the country increase food production.

Expected to be a major element in the effort to link researchers and farmers and to reduce the gap between yields obtained in experiments and those achieved by farmers, the Centre of the Advanced Study of Agricultural Communication (CASAC) was established.

The creation of the CASAC represented an early attempt to establish communication as an academic discipline in Indian agricultural universities and to build a continuing resource of communication skills for the country. The starting point began with people.

Few people in India had advanced academic credentials in communication. Therefore, recruiting or reassigning professors from related disciplines such as a extension and rural sociology and sending them abroad for training that would strengthen their competence *in communication* was a major step for the University. Each training program usually combined three ingredients:

- a consultant from abroad who served as a mentor,
- a training period at the mentor's institution or agency, and
- a national seminar in India.

The trainee conducted a visit of from four to six weeks to study the state-of-the-art in a particular specialization in the Philippines, the United Kingdom or the United States. Specializations included communication planning, distance education, information science and documentation, television and video production, communication research and evaluation methods and publications, to name a few.

A formula for training

The CASAC formula for the training was designed to reap maximum benefit from each Indian professor's time abroad. The process had four steps:

- First the professor was expected to conduct a brief study in India prior to going abroad. This was designed to help focus the person's activities during the second step — the training itself.
- Once abroad, in addition to taking and observing courses in the specialized field of communication and working with the mentor, the professor was expected to compile a comprehensive bibliography in the field of study and sometimes develop a course syllabus or teaching materials relevant to the Indian context.
- The third step came upon return to the home institution. Here, the person organized a national seminar, sometimes combining it with a consulting visit by his or her mentor. The national seminar was intended to be a way for CASAC to provide leadership in communication for other agricultural universities in India.
- Finally, the professor was to teach a course related to the specialization studied.

Building Agricultural Communication in India

While the institution-building project was not the only factor, it was a major factor in the introduction or upgrading of 38 communication courses at the University and the establishment of advanced degree programs, including a masters of science degree and a doctoral degree. The number of female students completing degrees in communication increased tremendously, thereby increasing the possibility of having women communication specialists available in the existing extension systems.

The increase in communication research conducted at the University by Indian researchers also benefited other agriculture efforts. The breadth of information and the resulting data base made it easier for those wanting to extend systematic development efforts into areas not generally reached by intervention projects.

Extension or communication?

While great strides were made in a relatively short institution-building period, there remains much to be done. More widespread recognition for communication as a legitimate academic discipline is needed. While extension is deeply entrenched in the agricultural university system in India, people frequently question whether there is really a difference between extension and communication.

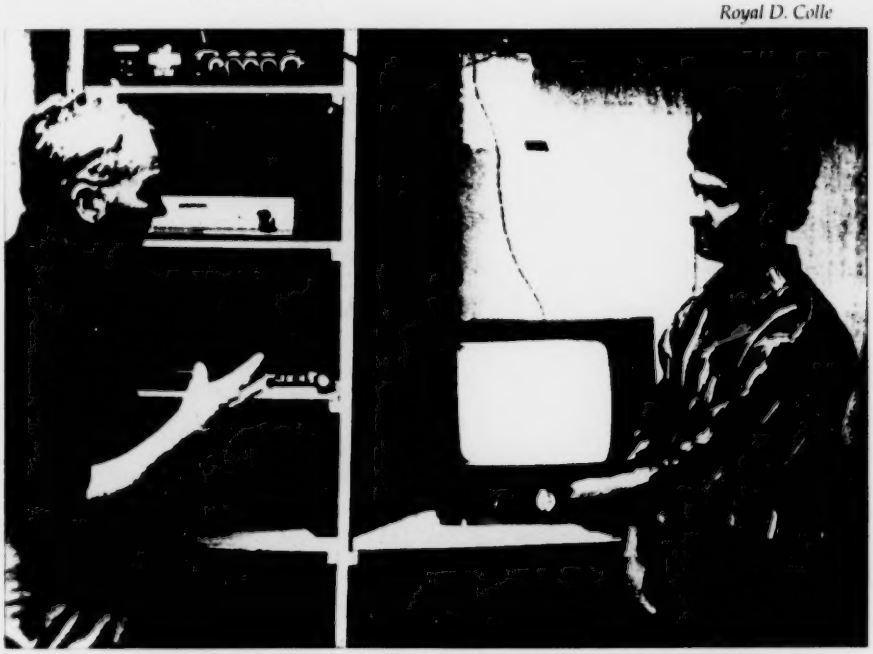
Noting that historically extension has been concerned primarily with technology transfer from research stations to farmers, CASAC members believe that while communication puts substantial emphasis on obtaining information from farmers, establishing linkages between various actors in agricultural production and the policy system, and conducting research on a variety of communication issues ranging from media and channel analysis to the process of communication. Recognition can best be gained through graduating highly competent people who themselves will take leadership positions in other universities and in agribusiness and government.

The leaders in CASAC state that demonstrating the application of the communication methods in major field operations serves as an example. And with appropriate "bridging" funds and collaboration, institution-building projects will more likely sustain the momentum towards institutionalization. This goal could be accomplished by phasing out of external funds as ministry funds for national projects are phased in.

To date, the government has created an infrastructure of 26 state agricultural universities and 45 research institutes. In this institution-building project, the national project mandated that CASAC and all the centers of excellence strengthen the infrastructure by helping build their disciplines at other SAUs and institutes through technical assistance. Meanwhile, the spread of satellite and cable systems into the remote areas of India suggests the need to take a careful look at both the opportunities and the consequences of modern communication in agriculture and rural development. These changes make it all the more important that communication centers like CASAC be able to expand communication research in India and help recognize communication as a discipline with an important role for agriculture. ■

Royal Colle worked with FAO on this project. He is the chair and a professor of Communication at Cornell University, College of Agriculture and Life Sciences, 339 Kennedy Hall, Ithaca,NY 14853-4203, USA. tel: (607) 255-2111; fax: (607) 255-7905.

Royal D. Colle



This local cable system equipment brings both satellite programming and videotapes to about 200 subscribers.

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Resources

Books

***French-English Agricultural Dictionary*, compiled by DO'D Bourke, CAB International, Wallingford, Oxon OX10 8DE, England. Cost: UK29.50**

With over 20,000 entries, this dictionary describes scientific and popular agricultural terms, literature, and techniques emerging from French speaking countries worldwide. It includes words and phrases associated with agronomy, animal husbandry, economics, soil science, statistics, pollution and conservation, forestry, indigenous terminologies, and other related topics—an excellent tool for the agricultural communicator working in both French and English speaking countries.

***Women, Conservation and Agriculture: A Manual for Trainers*, published by the Commonwealth Secretariat Marlborough House, Pall Mall, London SW1Y 5HX, England, 1992. 199 pages.**

This manual shows how women have had the primary responsibility for agriculture throughout Africa and how that role has affected their knowledge, relationship with and sensitivity towards the environment. It discusses why and how women need support to carry out their roles and how to communicate with women, learn from their indigenous techniques and incorporate new agricultural knowledge into agricultural projects at the local level. The manual is structured in a how-to format and contains diagrams, charts and other key points.

***Using Indigenous Knowledge in Agricultural Development* by D.M. Warren, World Bank Publications, P.O. Box 7247-8619, Philadelphia, PA 19170 USA. Cost: US$6.95 + 3.50 shipping and handling. 46 pages.**

This World Bank discussion paper published in coordination with the Center for Indigenous Knowledge for Agriculture and Rural Development (CIKARD) reviews projects which relied or incorporated indigenous knowledge into their structure and those which did not. Conclusions are drawn.

***Reaping without Weeping: A Guide to Safe Management in Applications of Chemicals in Agriculture*, Caribbean Network for Integrated Rural Development, 40 Eastern Main Road, At. Augustine, Trinidad.**

This cartoon booklet graphically illustrates problems related to using chemicals in agriculture. The experiences of three families show the consequences of certain risks and the how other family members have avoided sickness and death through cautious behaviors.

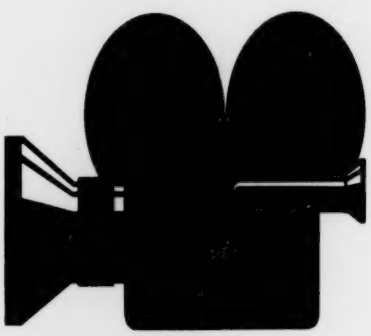
Videos

***A Fragile Paradise: the Environmental Challenge of Latin America*, Communications Unit, CIAT, A.A. 6713, Cali, Colombia. fax: 57-23-647243. 27 minutes. Spanish, English. Available in most formats.**

This video focuses on environmental problems and describes strategies to increase food production in an environmentally sustainable manner. It was filmed in Costa Rica, Haiti, Brazil and Colombia and was a joint venture between CIAT and AGCOM, an agricultural communication company.

***Stringing Out for Change: Puppets in the Hills* and *Sharing Knowledge: Communication for Sustainable Development*, created by the Food and Agriculture Organization, Viale delle Terme di Caracalla, 00100 Rome, Italy, fax: 06-57953152. Cost: US$40 each. Spanish (NTSC format in VHS or Betamax), French (VHS PAL or SECAM formats), English (VHS PAL or NTSC).**

These two videos show FAO-supported development communication in action and how various projects work. *Stringing Out for Change*, a twenty-one minute video, depicts how little theater has worked as a communication strategy in Burundi, and shows how to adapt plays and train communicators to use the medium. *Sharing Knowledge* concentrates on how communication can be used to share information among rural people, technicians and planners so that development takes indigenous technologies and people's real needs into account.



What's New, What's Coming

Conferences

The Association for the Advancement of Computing in Education (AACE), is sponsoring Ed-Media 93, the **World Conference on Educational Multimedia and Hypermedia** from June 23 - 26, 1993, in Orlando, Florida, USA. The conference serves as a multi-media forum for the dissemination of information on the research, development and applications of media for all levels of education. For more information, contact AACE at PO Box 2966, Charlottesville, VA 22902, USA; tel: (804) 973-3987; fax: (804) 978-7449; e-mail: AACE@Virginia.Edu

The International Communication Association announces its 43rd annual conference from May 27-31, 1993 in Washington, DC, USA. The conference theme, **Faces and Interfaces: Communicating Across Disciplines**, will consider the various relationships of communication to other fields through presentations and exchange of research and educational strategies. For information, contact Akiba A. Cohen, Dept. of Communication and Journalism, Hebrew University of Jerusalem, 91905 Jerusalem, Israel. tel: 972-2-883052; fax: 972-2-827069; e-mail: KCUAC@HUJIVM1.BITNET

The South East Asian Research Review and Universiti Brunei Darussalam are organizing the conference **Towards Education for All** from September 20-23, 1993 in Brunei Darussalam to focus on the progress made in the ASEAN region since the World Conference on Education for All held in Jomtien, Thailand in 1990. For information or to submit a paper, contact: Organizing Committee, Faculty of Education, Universiti Brunei Darussalam, Gadong 3186 Brunei Darussalam. tel:(673) 2 427001; fax:(673) 2 427003.

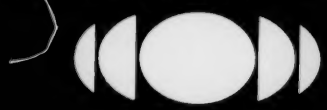
The Asian Network of Women in Communication (ANWIC) is organizing a **Forum on Networking and Advocacy** in New Dehli, India in September, 1993. The forum will also discuss the network's participation in the global conference on Women Empowering Communication to be held in Bangkok, Thailand in February, 1994. For information, onctact: ANWIC, 14 Jangpura B, Mathura Road, New Delhi 110014, India. tel: (11) 619821

Courses

Larenstein International Agricultural College Deventer offers a midcareer course in rural extension and teaching for agricultural extension workers. The program has both a theoretical and practical component and runs from June until August each year. For more information and entry requirements, contact: LIACD, PO Box 7, 7400 AA Deventer, The Netherlands. tel: 31 5700-84600; fax: 31 5700-84608.

CDC resources can now be accessed via the Internet. For information, send inquiries to: cdc@permanet.org

An article in DCR 82 will discuss the benefits and practical uses of electronic mail in more detail!



The Inter-American Institute for Cooperation on Agriculture (IICA) offers courses on development communication including *Mass Communication for Rural Development, Planning Communication Projects to Support Rural Development, Video Production and Principles of Distance Education.* For information, contact: IICA, Apartado 55-2200, Coronado, Costa Rica. tel: 506-29-0222; fax: 206-29-3486.

The International Program for Agricultural Knowledge Systems (Interpaks), a multi-disciplinary program at the University of Illinois ot Urbana-Champaign, is introducing **Improving Organization and Management: A short course for Extension Administrators.** The series of short courses includes all levels of management, such as analyzing performance, targeting special groups, leadership and using computers to improve extension management. Dates for 1993 are September 7 - October 13, 1993. For information, contact: Director of Interpaks, University of Illinois at Urbana-Champaign, 110 Mumford Hall, 1301 West Gregory Drive, Urbana, IL 61801 USA. tel: (217) 333-5834; fax: (217) 333-5838.

King Alfred's College, University of Southampton has introduced a full-time, one year program in **Television for Development** leading to a masters degree. The coursework links television and video production with processes of poverty and development and prepares development workers for work in communication and the media. For information, contact: The Admissions Office, King Alfred's College, Sparkford Road, Winchester, SO22 4NR England. fax: (0962) 842280.

Being a Good Communicator Doesn't Solve all of Extension's Problems

yes but...

by Willem Zijp

An estimated 600,000 people currently work in extension services worldwide. Ninety percent work for governments, 80% are field workers and 13% are women. Since the 1960s, countless extension agents have practiced their art to communicate new technologies and information to farmers throughout the world.

But being good communicators has not solved extension's basic organizational problems. Indeed, agricultural extension agencies in the 1990s are beginning to show greater interest in developing a more system-wide communication approach to agricultural information where smaller private initiatives are less likely to be crowded out and the supply and demand for *information* are better identified. In order to achieve these goals, agricultural extension projects and organizations need to be alert and willing to confront the symptoms of an outdated system and look for ways to rebuild it.

Symptoms of an outdated system

The following basic cracks in extension planning and implementation continue to impede successful communication strategies and well-intentioned extension efforts.

The lack of common ground. Many extension projects have failed because not enough time was spent building consensus between farmers and extension agents and communicating across extension efforts. Symptoms include: a) insufficient extension agent knowledge of farmers in terms of gender, farming systems and constraints to change; b) a large number of different and overlapping extension structures; c) insufficient mutual reinforcement of extension, research and education; and d) supply-driven programs which neglect skill gaps among staff.

The lack of accountability with clientele. In many cases, extension projects have lost credibility due to the unforeseen negative consequences of their suggestions. Poor extension designs have included: a) a poor fit between the needs of diverse farmers and the messages supplied; b) demonstrations with limited applicability for most farmers; c) biased farmer selection; d) concentration on irrigated crops to the detriment of natural resources management, rainfed agriculture and livestock production; and e) bad management routines, including a lack of incentives.

An expanding audience. Farmers are not the only users of information. Policy makers and researchers generate, transfer and utilize information too. Extension has not been very effective in changing policy makers behavior because, first, extension often lacks the diagnostic and editorial skills to uncover farmer's perceptions, and second, policy makers seldom ask.

Lack of policy consistency. Few national extension services and donors have formulated exact policies, objectives, target clients and expected output. Without explicit extension policies, the debate on methods and approaches has forced choices which are not articulated within the rest of the national agricultural policy. The result has been confusion or conflict among financiers, policy makers and extension planners over what exactly they are trying to achieve.

Recommendations for better extension

An improvement in efficiency and effectiveness could be achieved in four ways:

Shared objectives. Organizations where staff and clients work towards a common goal are more successful. Extension services need to get to know their farmers better. Participatory diagnostic surveys, carried out by teams of farmers, researchers and extension staff from the public and private sectors and working in a limited area for a few weeks, are a start. Priorities for extension and research need to be established from the results, and tasks need to be distributed among all parties to build a common commitment. A follow-up training plan needs to be established based on a skill gap analysis which compares what is needed in terms of extension staff levels, gender, experience, skills and attitudes with what is actually available.

Stronger accountability. Accountability often boils down to the input farmers have during the period of extension services; for instance: a) direct control over part of the public extension budget; b) contracts between farmers, government and advisory services which specify target audience and desired changes in farmer behavior; and c) private or commercial opportunities associated with the new agricultural practice.

A system-wide approach to information. While extension managers have learned to be more perceptive of changes in farmer's needs, information should also be looked at *system-wide*, to include education, research, extension and farmers' knowledge. Delivery systems need to shift from an almost exclusive focus on production to providing advice that improves farmers' income and quality of life; from recommendations for on-farm activities to counseling for related off-farm and non-farm activities; and from mostly public extension to a mix of public, private and farmer organizations.

Comprehensive policies. Comprehensive policies for agricultural information are needed to respond to expanded and different information needs from a widening audience. More attention needs to be given to information demand and supply and technologies which facilitate information sharing.

Agricultural communication has challenges ahead. No longer can extension agents bear the full responsibility for poor extension. It is time to broaden the vision to include changes in the organization of extension projects and the parties participating in the communication process. ■

Willem Zijp is a Senior Extension Specialist at the World Bank. He can be reached at: 1818 H Street, NW, Washington, D.C. 20433 USA, fax: (202) 334-0473.

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Development Communication Report

No. 81
1993/2

To Our Readers:

EDC

This DCR issue focuses on "interactivity" and learning technologies. Translations are available In French and Spanish. Educational researchers and education and communication projects around the world are discovering that interactivity in learning not only increases learning outcomes and retention rates, but also expands students' capacity for learning.

This issue contains articles about several forms of interactivity from the cutting edge of multi-media technology to interactive theater and storytelling.

— The Editor

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People Based Interactive Instruction: A Workshop by Thiagi

by Sivasailam Thiagarajan

I conducted my first "experimental study" in interactive instructional technology in 1965 in Madras, India. Inspired by an article by O. K. Moore about talking typewriters, my students and I created a cardboard mock-up of a computer with wires connecting it to an old typewriter keyboard. We pasted a selected set of letters from the Tamil alphabet on the keys.

Our "subjects" were preschool children. A child sat in front of the computer and when he or she pressed a letter on the keyboard, a voice from inside the computer enunciated the sound of the letter. If the child typed two or three letters in succes-

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Cutting Edge Multimedia Technologies: Promise and Pitfalls

by Janice Brodman

The variety, the power, and the flexibility of computer-based multimedia training technologies is exploding. Each year, the capability of the new technologies increases dramatically. Technologies that were "cutting edge" only a year or two ago, today are considered limited.

Nonetheless, it is worthwhile to understand the newest multimedia technologies and their potential for use in both developing and developed countries, even if tomorrow's technology breakthrough may make render them obsolete to some users.

Back to the Future with Multi-media

Once upon a time, "multi-media" meant that a human being used video, slides, and audio tapes as part of his/her presentation. Today,

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Development Communication Report

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 7,000. The newsletter is available free of charge to readers in the developing world and at a charge of $10.00 per year to readers in industrialized countries.

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Workshop by Thiagi, cont'd from p.1

sion, the computer pronounced them close to each other, thereby creating a word. Through a series of exercises, several children, including my two-year old son, learned basic phonics of the Tamil language.

An Approach to Interactive Instruction

The secret of our talking computer was an older student from my wife's third grade classroom hidden inside the cardboard "computer." Through carefully hidden peep holes in the front, this person, who we called the "pseudocomp," saw which keys the child was pressing. After a sufficient pause, he said the correct sound. We "programmed" the pseudocomp on exactly what to do and how to do it. For backup, we trained several other third graders to act the part. Later on, when our cardboard contraption fell apart, we discovered that it was not the hardware, but the software which produced effective learning. New batches of children sat in front of the keyboard and the unhidden pseudocomp and went through the interactive process. The novelty was not there, but the children learned phonetic Tamil.

This study was the beginning of our interest in an approach to learning technology which we labeled People-Based Interactive Instruction (PBII).

Two Secrets of Effective Instruction

For the past 30 years I have been involved in designing and delivering PBII around the world, frequently under the guidance of Professor Douglas Ellson at Indiana University. While many factors have contributed to the effectiveness of this approach, there were basically two important elements:

People learn most effectively from other people. Several anthropological, sociological, cultural, and psychological principles support this generalization. In most learning situations (especially in basic literacy) people constitute the most cost-effective instructional medium.

People need a structure to produce optimum interactivity in the learning process. While inspired teachers may sometimes produce brilliant results, not every situation can afford—or require—such an inspirational person. But for reliable and consistent results, almost anyone who knows the subject can be an efficient interactive instructor, provided we "program" their behavior to provide an interactive structure.

Three Components of Effective Instruction

Instructional technologists are generally fond of electronic media and suspicious of people. They are frequently obsessed with using the instructional system over the human element. We agree that in general people are less reliable and predictable than a microprocessor, but that is why we have the programming component in PBII.

To understand the rationale for programming instructional behaviors, let us explore the three essential events in effective instruction. Independent of one's psychological or philosophical frame of reference, everyone would agree on these three essential elements of interactive instruction:

1) Presenting new information to the learner
2) Eliciting a response from the learner
3) Giving feedback to the learner

People are very effective in presenting new information, especially in language arts and basic skills. They can even provide the information to nonreaders.

People are very effective in eliciting learner responses. Their mere physical presence makes it difficult for the learner to ignore the question. People can use several verbal and nonverbal cues to encourage and prompt the response.

People are very effective in providing feedback. People can process spoken responses much more efficiently and reliably than the most sophisticated computer. They can probe for the causes of the learners' error and correct them at the appropriate level of difficulty. They can smile, praise, and socially reinforce the learner.

Several studies around the world dem-

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onstrate the effectiveness of PBII. Field workers from the Institute for International Research, for example, have implemented large-scale programmed teaching and programmed learning (two of the most documented approaches to PBII) projects in the Philippines, Indonesia, Bangladesh, Liberia, and Belize. Other groups have demonstrated the power of this approach with other groups of learners in different curricular areas around the world.

Four Types of PBII

A successful PBII effort can use one or more of the following four types of people as the key component in interactive instruction:

Teachers. Teachers are the most obvious choice. An PBII approach called programmed teaching has demonstrated its effectiveness with teachers, especially during the early years of primary education. In this approach, interactive instructional materials consist of two components: content materials and operational materials. *Content materials* contain information to be presented to the learners in the form of pictures, letters, words. These materials are designed by curriculum specialists, using the best available information in the subject area. *Operational materials* tell the teacher exactly what to show, say, and do to present new information, elicit learner responses, and to provide feedback. These materials are designed by learning technologists, using the best available information from behavioral and cognitive sciences.

Educators are usually concerned about programming creative teachers into mechanical performances. Thirty years of work in programmed teaching around the world reveals very little resistance from primary school teachers. Most of them are eager to follow specific directions (in contrast to the vague guidelines usually handed down to them) because they can see the children actually learning.

Tutors. Tutors can provide interactive instruction to individual learners and to small groups. In project PAMONG in the Philippines, sixth-grade students act as tutors for first-grade children. Using specially designed materials that are similar to programmed-teaching materials, older students and paraprofessionals can provide mainstream and remedial instruction to learners.

Parents. Parents make excellent tutors and teachers for their children. Wherever motivated and literate parents are available, they can provide basic instruction in the classroom and at home using specially designed Parent-Assisted Learning materials. Most parents appreciate the opportunity and the tools to help in their children's learning process.

UNICEF/J.Schytte

Peers. Peers can be programmed to deliver interactive instruction to each other. In the Liberian Improved Efficiency of Learning (IEL) Project, for example, learners in grades four through six use peer-learning materials in all subject areas. These materials provide the content to be cooperatively studied by teams of learners. Different members of the team take turns being the leader. Using a leader's manual, the team leaders require their teammates to respond to questions and provide feedback in the

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form of the correct answer. Evaluation data from the project demonstrate that this approach to PBII retains the demonstrated effectiveness of peer-tutoring and increases its reliability.

Five Steps in Designing PBII Materials

The steps in designing a PBII system are similar to the steps in the design of any other instructional system. Here are the key components.

1. Human resources analysis. Begin by identifying different types of people in the situation who can be integrated in the PBII system. Determine what role can be played by teachers, paraprofessionals, older students, parents, and peers.

2. Curriculum analysis. Identify the instructional content and objectives. Prepare an outline for the lesson.

3. Content design. Prepare instructional materials, using the most appropriate media, taking into account the needs of instructional objectives, learners, and teachers. Most PBII materials use printed booklets and poster. Audiotapes and radio broadcasts can provide additional information.

Panos Pictures Hartley

These community members are helping in the evaluation stage of the education intervention.

4. Activities design. Using the content materials, prepare appropriate operational programs to guide the teacher, tutor, or team leader to deliver interactive instruction. Depending on the nature of the task, design a consistent set of steps for presenting information, prompting the learner, and providing feedback. For example, if you are teaching a concept, the standard operation may involve presenting examples, asking questions about similarities and differences among the examples, and pointing out critical features of the examples.

5. Evaluation and revision. Evaluate the PBII system at various stages of its development and make appropriate revisions: When the content materials are ready, test them directly with the learners. After revising these materials to an appropriate level of reliability, test the operational programs with teachers, tutors, or team leaders. Make suitable adjustments to the procedures until different people are able to produce the same consistent results.

Conclusion

To explain the design and delivery of PBII, Professor Ellson uses the analogy of composers and musicians. A few composers design music which is then played by several musicians. Very few musicians have the talent or the need to compose their own music. They use their talent to faithfully reproduce the composer's creation. In the same fashion, a few learning technologists and curriculum specialists can design interactive instructional systems. Several other people can use their efforts and talents to implement the system in a reliable fashion.

Millions of people around the world have the basic subject-matter knowledge to deliver interactive instruction to millions of learners. To tap into this vast resource, we need a few learning technologists to compose the interactive instructional music and set the stage for reliable implementation. ■

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"multi-media" still does—with graphics and animation thrown in—all presented by a microcomputer-driven system. The aims are identical: to engage the learner, to provide "life-like" experience and to keep learners from becoming bored.

Today, "multimedia" technologies includes five major types:

- **Computer-based training (CBT) using the newest machines**
- **Compact disc - read only memory (CD-ROM)**
- **Interactive videodisc (IVD)**
- **Compact disc - interactive (CD-I)**
- **Digital video interactive (DVI)**

They all offer the following major features, though not always with the same quality and power.

Multiple media. These media include text, still pictures, sound, graphics, animation and some video, which can range from crude to excellent. The expectation is that this combination can teach more effectively than any single medium alone.

Interactivity. These microcomputer-driven technologies let the learner participate (although participation may mean simply pushing a button to choose from alternatives), and they respond to the learner's choices (e.g., with corrections or further information).

Self-paced learning. Many multimedia programs "tailor" instruction to the learner. The technologies vary in their ability to run such programs, however. The best programs test the learner and pace the instruction to his or her knowledge and progress.

Independent instruction. Most multimedia programs are designed to be used without an instructor. As a result, they can substitute when there is no instructor available to teach a particular topic. They can also provide basic instruction, freeing instructors to teach more complex subjects. This feature also provides a "safe" environment where learners can make mistakes without worrying that they will be embarrassed in front of others.

"Instantly available" instruction. The equipment can be placed in an accessible area, e.g., an office or on the factory floor. In this way, workers can take training courses when it is convenient rather than having to leave work for scheduled classes.

Consistent, high quality instruction. Because the programs will be used by a large number of learners, it is financially feasible to spend far more time and money to create high quality programs than even the best instructor can do.

Skills measurement. The technologies can measure competency, monitor learners' progress, and ensure that learners have reached a particular skill level before they proceed.

Simulated "hands on" experience. Some offer only very limited "hands on" training in computer use. Others, especially IVD and DVI, can provide simulated "hands on" training that substitutes for sophisticated equipment, complex or dangerous situations, or trips to the field. Exceptional programs even offer experience that could not be gained in a real "hands on" situation (see sidebar).

Rugged equipment. Like microcomputers generally, multimedia systems are quite rugged, hold up well for long periods, and can survive considerable variation in climate. Naturally, they won't survive abuse, but if treated reasonably well, multimedia systems will last many years needing little or no repair.

Ease of use. Multimedia systems are generally easy to use. Programs can be designed even for learners with little or no literacy or numeracy skills.

Each of the five types of multimedia has particular advantages and disadvantages. In considering the use of multimedia, it is important to consider these trade-offs.

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The aims of multi-media are to engage the learner, to provide "life-like" experiences and to keep learners from becoming bored.

Multimedia Technologies, cont'd from p.5

In India, an IVD program provides engineers with feedback, guidance, and an opportunity to "try out" different styles of working with water users.

CBT

We use the term "computer-based training" (CBT) here to refer to microcomputers alone, without add-on equipment such as CD-ROM, IVD or CD-I players. There are two major types of microcomputers: IBM-PC compatible (PCs) equipment and Macintosh equipment. Both types begin at around $900 for the low-end and run up to $6,000 or more for new equipment. Used equipment can be considerably cheaper.

Advantages. All Macintosh microcomputers, even the low end, offer sound, animation, pictures, and even some video (though it is very limited and crude on the low end machines). The new PCs (80486 generation) offer the same multimedia features, but at a higher price.

If you have access to a good quality telephone line, then a major benefit of microcomputers is their ability to link to electronic networks. Through them you can access information, and communicate with other users, including experts, from all over the world. To do so, you will need a modem.

Disadvantages. Traditional CBT programs tend to be text-intensive, repetitive, and unimaginative. Even newer CBT programs offer more limited and lower quality visuals than do other multimedia systems.

How it is used: CBT is usually most effective if it is part of an instructor-led training program rather than used alone. A wide range of CBT programs are available today, and even mid-range programs can be impressive. One example is the "Electronic Workbench," a training program that gives students simulated hands-on experience with technical equipment and procedures. There are also many excellent programs that help improve users' basic skills (reading, mathematics). Even traditional CBT programs can be effective for drill and practice tasks because the programs provide consistent training and immediate feedback (something you can rarely get in a classroom).

Caution. CBT programs are numerous and vary widely in quality. It is important to be able to identify high-quality CBT software at reasonable prices.

CD-ROM

A CD-ROM (compact disc-read only memory) system consists of a CD-ROM drive linked to a microcomputer.

Advantages. A CD-ROM system lets you to store a huge volume of information—equal to an entire encyclopedia—on a single compact disc. The information can be in the form of computer graphics, animation, text, sound, still pictures, and low quality video. If you already own a microcomputer, adding the CD-ROM drive is relatively cheap—about $200.

Disadvantages. CD-ROMs are slow compared with other multimedia systems. They also offer very limited and primitive motion video. This makes them inappropriate for some applications—such as training in a medical procedure, which depends on showing clear video of the actions taken.

How it is used. CD-ROM programs often provide instruction via text enhanced by pictures (graphics, animation or photos) and sound. For example, CD-ROM instruction on engine repair might provide a text explanation, along with a graphic image of the engine—the visuals to illustrate the malfunction, and the sound to represent the engine malfunction.

There is a huge number of "off-the-shelf" training and education CD-ROMs from which to choose, available at prices from $14 to over $300.

Caution. Make sure the CD-ROM drive you are purchasing actually plays the programs of your choice.

INTERACTIVE VIDEODISC

Interactive videodisc (IVD) combines excellent video, still frames, text, graphics, animation, and sound. IVD systems consist of a microcomputer, a laserdisc player, and may have a special monitor.

Advantages. IVD provides far better quality video than CD-ROM or CBT and has quick response time. It can handle more complex programs than can CDI. It is better established than DVI.

In general, U.S. companies that want a multimedia training technology with good video tend to choose IVD rather than the alternatives.

IVD can provide excellent simulated "hands on" training, building problem-solving and decision-making skills that learners need in "real life" situations.

Evaluation results of IVD in the U.S. consistently show that people learn faster and retain information longer with IVD than with conventional training methods.

Disadvantages. IVD systems are generally more expensive than CBT, CD-ROM and low-end CDI. If you already own a microcomputer, adding IVD will cost from $750 to $4,800, depending on the components.

Another disadvantage of IVD is the lack of standards. As a result, some IVD programs (especially older programs) will only run on certain IVD systems; they must be reprogrammed to run on others.

How it is used. IVD is often used when "hands on" experience is important and is difficult, dangerous, or expensive to provide.

There is a large number (over 2,000) of "off-the-shelf" videodiscs in various skills areas. In the U.S., IVD is most widely used in medical training, industrial training, professional training, and training in safe practices. For example, IVD programs can put medical students in life-like situations where they learn to make rapid, accurate decisions, without endangering the lives of real patients. IVD can substitute for equipment for which damage would be expensive, e.g., teaching truck driving under hazardous conditions, or teaching welding skills. IVD has been used by companies in several developing countries, including India, Malaysia, Saudi Arabia, Egypt, Mexico, and others to provide industrial skills and safety training.

Caution. Be sure that the IVD system you purchase will run the programs that you want to use.

DIGITAL VIDEO INTERACTIVE

Digital video interactive (DVI) offers video, still frames, graphics, animation, sound, and text. A DVI system typically includes a microcomputer (80386 with at least 25 MHz or 80486), a DVI board in the computer, and a hard drive of at least 200 MB or a CD-ROM.

Advantages. DVI offers many of the same advantages as IVD—motion video, quick response time, complex programs. In addition, DVI stores video digitally, on the computer rather than on a videodisc. As a result, it is cheaper for producers to modify the video and pictures on DVI than on IVD.

Disadvantages. A major disadvantage is DVI's relatively recent development. Unlike IVD, there are no "tried and true" DVI systems. As

continued on p.8

Interactive Videodisc in India: High Tech Options for Development Communication

In India, a pilot project was conducted by Education Development Center, under contract with the U.S. Agency for International Development, to see whether interactive videodisc (IVD) could help train the thousands of irrigation engineers India will need in the coming decade.

The project developed five IVD programs on irrigation management and trained Indian trainers in IVD development. The IVD programs covered topics ranging from technical content to "interpersonal skills." Programs "take" the engineers to the field without the expense of transportation. They provide training from top experts. They offer features that could not be provided in any other way.

For example, the program *"Working with Water User Associations"* lets engineers interact with water users over different issues, and see how farmers respond to the engineer's behavior and communication style. The program provides feedback and guidance, and gives engineers an opportunity to "try out" different styles of working with water users and see the response.

The program *"Diagnosing Maintenance Problems and Their Causes"* sharpens engineers' ability to identify maintenance problems and their causes in irrigation systems. The program lets the trainee "travel" along three irrigation canals, and diagnose maintenance problems in over 100 sites. The trainee can examine the canal both "wet" (with water flowing) and "dry" (without water) by simply clicking a button—a valuable experience that would be difficult to provide even with trips to the field. The trainee diagnoses the problems, gets information feedback for correct and incorrect answers, and a score that measures his/her diagnostic skills.

The response to the IVD programs has been enthusiastic on the part of the Indian training institutes and the Ministry of Water Resources. Upon reviewing the IVD programs, the Central Water Commission decided to house systems in Delhi in order to make them more accessible to engineers from all over India.

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Multimedia Technologies, cont'd from p.7

This interactive videodisc operator can use programs which simulate real events with real choices and results.

a result, it can be difficult, time consuming, and expensive to put together a DVI system that will do what you want. There are other disadvantages: DVI video is not as good as that of IVD. DVI programs with a lot of video require microcomputers with very large hard drives. Unlike IVD, DVI does not have the large number of "off-the-shelf" programs from which to choose.

DVI systems are also expensive, generally somewhat more expensive than IVD systems. In addition to the cost of a microcomputer, a DVI system components cost about $2,500 (for the DVI board and a large hard drive or CD-ROM drive). However, those prices are expected to drop considerably this year.

How it is used. DVI programs are generally used for technical training or as kiosks for getting information. For example, in Saudi Arabia and Egypt DVI kiosks are placed in school lobbies and provide information to students on health practices, such as AIDs-related behavior and illegal drugs.

Caution. If you are considering purchasing a DVI system, be sure that the particular DVI system you are buying can actually do everything claimed by the vendor.

CD-I

Compact Disc-Interactive (CD-I) systems were originally conceived and designed to be a single unit entertainment system.

Capabilities. Low-end CDIs are usually cheaper than IVD, DVI, CD-ROM, or CBT systems (as low as $800) and deliver text, graphics, animation, sound, still pictures, and some video.

Disadvantages. Low-end CDI system provide limited, video game-like capacity, with less instructional complexity than typical IVD, DVI, CD-ROM or CBT programs. In general, CDI is less appropriate than IVD or DVI for "hands on" training, especially if video is important. Low-end CDI systems can not measure student competency. More powerful CD-I systems do exist, but they are also more expensive—approximately the same as a mid-range videodisc system (approximately $2,200).

Note that if you already own a microcomputer:

- It is cheaper to add CD-ROM than to buy a CD-I system
- It may be cheaper to add an IVD system than to buy a high-end CDI system -- and you'll get more power

How it is used. CDI is generally used for kiosk-type public information delivery, as well as for other relatively simple training programs. Many of the existing CD-I discs are simply electronic databases.

CD-I appears to be most appropriate for programs that require a combination of sound, photo images, limited video, text and graphics, and are relatively simple in content and design.

Low-end CD-I might provide value for developing countries in two ways:

- As a multimedia storage medium instructors can use to illustrate material discussed in the classroom, or to demonstrate material or examples that cannot be covered in the classroom.
- As a delivery system for "public information," or for simple training.

A final note—multimedia offers exciting training options for developing countries. But the impact of any technology depends on *people*. A talented designer creates programs that bring out the best in a particular technology. A talented teacher uses the technology so that it enhances learning. An innovative education system provides incentives that encourage teachers to use the technology effectively. In sum, only *human beings* determine whether multimedia will be powerful learning tools, or simply bulky bookends.

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Rethinking Interactivity: Lessons from Interactive Radio Instruction

by Jeanne Moulton

Interactive Radio Instruction has gained worldwide attention as a low-cost means of helping children learn in schools with poorly trained teachers and few additional resources. Yet the "interactive" character of this strategy has taken new forms as new programs have been designed in different subject areas, for different groups of students, and using different media.

In the Radio Mathematics program introduced in Nicaragua in 1974, interactivity was characterized as a "conversation" between the radio teacher and the students. The radio teacher posed questions to which students responded in chorus at a rapid pace. Since then, interactive radio instruction has being used to teach children and adults basic language and science, to instruct them in good health practices, to promote environmental protection, and to train teachers.

Limits of "conversation"

At each stage of its adaptation from one use to another, program designers have faced different kinds of learning objectives, resulting in new challenges. They have encountered limitations in using "interactivity" and "conversation" interchangeably and have looked for ways to adapt the model:

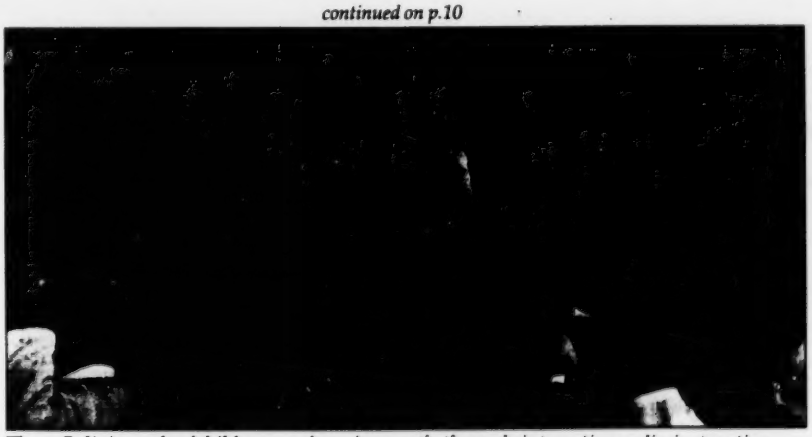
- Designers of the Radio Language Arts Program piloted in the early 1980s in Kenya had to find ways to allow students to express a range of answers to a single question. While many questions in basic math have only one correct answer ("two plus two is four," "three times four is twelve"), even simple questions in language arts are likely to have more than one right answer ("What are you doing?" "I'm talking with you." "We're learning English."). The fast-paced conversation does not work as well in teaching language.
- Mastery of basic math and language skills require that students spend many hours learning numbers and letters and the most fundamental operations and concepts. But the designers of Radio Science—a project undertaken in Papua New Guinea in the late 1980s—wanted to encourage inquiry and problem solving skills. To reach their objectives, they needed to help students explore natural phenomena and ask open-ended questions.
- The Radio Health and Radio Environmental Education projects introduced in Bolivia and Costa Rica respectively in the 1990s are aimed not only at teaching knowledge but also at changing behavior. The radio teachers need to help students apply what they learn in the classroom to their lives at home and in the community. A series of rapid-paced questions and answers does not go far enough in promoting behavior change.

Fortunately, the initial characterization of interactive radio instruction as "conversation" has long since been expanded to include other kinds of interactivity. For example, Radio Language Arts used the radio as a "door" to an imaginary world in which English was spoken. Radio Science used the radio teacher to guide students and teachers in conducting hands-on demonstrations and in answering open-ended questions. Radio Environmental Education supplements the broadcasts in the classroom with broadcasts to the community.

Learning Principles of Radio Math

In adapting these projects, designers may be tempted to diverge from the original learning principles that were the foundation of Radio Mathematics and that gave rise to the "conversation" mode of interactivity:

continued on p.10



EDC

These Bolivian schoolchildren are learning math through interactive radio instruction.

Rethinking Interactivity, cont'd from p.9

- Students learn best from active engagement in the tasks they do.
- Students learn best by practicing new skills in short lessons distributed over days, weeks, or months.
- The instructional design must be rigorous.
- Correct student responses must be reinforced immediately.

It appears that we need to reexamine the usefulness of defining "interactivity" as simply a conversation, and look again at the value of interactivity in Radio Mathematics as well as in subsequent interactive radio instructional programs. For this purpose, it is useful to look at a broader definition of "interactivity" used in the design of distance learning materials and at the progress made since the time of Radio Mathematics by educational psychologists interested in how people learn.

The value of interactivity

Although interactive radio instruction may not always "look and sound like" Radio Mathematics, it can be an effective course of instruction as long as it adheres to a broader definition of interactivity. Distance learning media, including radio, television, computers, and print materials, often incorporate interactive formats. The pedagogical value of these interactive programs is their ability to:

- actively engage the students in the learning materials, and
- present highly structured lessons that allow the radio teacher to control the sequence and pace of learning activities.

Contributions of recent learning theory

Recent advances in learning theory can offer guidance in adapting interactive radio instruction to the challenges of teaching language, science, and social studies. Cognitive learning theories focus on the structure and processes of the mind. These theories have replaced some behaviorist theories which focused only on observable behavior and which served as foundations for Radio Mathematics.

Psychologists now believe that the mind is a dynamic organ divided into *long-term memory* and *working memory*. While long-term memory has an unlimited capacity to store information, working memory has a limited capacity and a limited duration.

The processes of the mind are learning, remembering, and thinking.

- *Learning* is the process of adding to long-term memory. *Declarative learning* is moving information from working memory into long-term memory. *Procedural learning* is the process of transforming a deliberate, step-by-step processing activity into an automatic processing activity.
- *Remembering* is the process of activating a previously stored memory representation.
- *Thinking* is the process of the mind learning from itself. Thinking involves solving problems, forming new concepts, and making decisions.

The implications of this model of the mind support the principles on which Radio Mathematics was based: active engagement of the learner, distributed learning, rigorous instructional design, and reinforcement of correct responses.

Additional learning guidelines

Cognitive learning theory also offers new guidelines that can guide the develop-

ment of interactive instruction in subjects like science and social studies as well as in math and language. The guidelines that we have derived from these principles are to:

- *Teach procedural knowledge and learning strategies as well as declarative knowledge.* In all subjects, students master the material better when the basic procedures required for problem solving come with little effort. Similarly, students who learn well in a subject do so in part because they have developed learning strategies.
- *Help students to recognize their existing constructs and to modify those constructs with the acquisition of new information.* Recent learning theory emphasizes that we must "unlearn" representations of knowledge already in the mind so that they can be replaced with more accurate representations. Lessons should include activities that encourage students to state aloud or write down what they know about a concept before it is taught in order to help them relate the new knowledge to the existing concept.
- *Provide meaningful links between new knowledge and real problems, concepts, and decisions.* Designers of interactive radio programs have recognized that most of their students would end their career in school after five or six years, and that therefore their basic skills should be developed with practical rather than academic applications in mind. Cognitive learning theory gives us another reason for linking lessons in the classroom to real-life situations: Acquiring skills and strategies, no matter how good one becomes at them, does not make one a competent reader, writer, problem solver, or thinker. Throughout the course of instruction, students must be given occasions to stretch their understanding of their newly acquired knowledge through confrontation with meaningful problems to solve and decisions to make.
- *Make use of the social dimensions of learning.* Although psychologists are not sure why it is so, students appear to increase their mastery of a subject through discussing problems with others—often their peers and their teacher. Cognitive theorists see two possible explanations for this: 1) when they talk aloud in solving the problem, students reveal to themselves and to others their thinking processes. Those that lead to success are gradually adopted by other students to solve later problems; and 2) when students work together to think through problems, thinking becomes an activity with social value.

More recent interactive radio programs have made use of these guidelines. Radio language programs in Guatemala and South Africa are designed to help students begin by constructing their own utterances rather than mimicking correct ones. Radio Health has done extensive preliminary research and formative evaluation to ensure that lessons start from what students think about health matters. Radio Science has designed lessons that link students' real-life experience to concepts presented in classroom lessons. And Radio Science and teacher training programs have explored using peer interaction to teach material.

Educators who are struggling with the design of new interactive instructional programs should benefit from considering the principles of cognitive learning theory and from consulting the materials developed in interactive radio instruction projects since Radio Math and in other basic education instructional programs derived from cognitive learning theory. ■

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Distance learning media, including radio, television, computers, and print materials, often incorporate interactive formats.

T. Tilson

In this interactive health program, the children work together to solve problems.

Breaking the Ice:
The Karate Kids Mixed Media Package

by Christopher Lowry

Street children are survivors. Every day they confront challenges and suffer indignities that most of us could not endure. On the streets of the world's cities, kids are vulnerable to a variety of health problems, and over the last decade HIV/AIDS has been added to the list.

The animated action-adventure video ***Karate Kids*** is part of an interactive cross-cultural HIV/AIDS education program for street children developed by Street Kids International in cooperation with the World Health Organization, the National Film Board of Canada and other partners. Created to fulfill the need for simple, explicit AIDS health education for street youth in the developing world, the cartoon package (a 22-minute karate-adventure cartoon on video, a training book for educators, and a pocket comic book) is now in distribution in 17 languages in over 100 countries. ***Karate Kids*** is shown in community centers, in theaters, out of the backs of trucks, in hospitals, schools and prisons. In Thailand alone 3,500 copies of the cartoon are in distribution, and 2,500 street workers have been trained by the Thai Red Cross to use the cartoon in a group discussion.

As ***Karate Kids*** is distributed primarily in video format, it is easily copied—which is encouraged. In 1993, Street Kids International has received requests for five new language versions, including Russian and Cantonese. An advantage of the cross-cultural format established by *Karate Kids* is that it can be easily adapted to new language versions, independent of the original producers.

Rambo and Bruce Lee

In order for the cartoon to be truly cross-cultural, it was necessary to identify risk behavior and values and pleasures shared by children in extreme poverty throughout the developing world. Research revealed that one of the most popular heroes among street kids everywhere is the vigilante movie star Bruce Lee; thus, the street educator hero of ***Karate Kids*** is loosely based on Bruce Lee.

Key aspects of the common culture of the children depicted in *Karate Kids* are economic marginalization, the formulation of youth gangs in the face of family breakdown and the misery of slum life, mistrust of authorities and strong emphasis on the basic human values of friendship, courage, and ingenuity. Street children were the most important consultants on the project, both in the development of the story and in the formative evaluation stage when the creative team tested the storyboard cartoon in five languages.

The Video Revolution

Children everywhere love cartoons. In the past, the need for a film projector limited the potential use of cartoons or other films in non-formal education settings. Today, the videocassette player (VCR) has revolutionized community-based education. Widely available in cities and towns, and easy to use, the video player is an excellent education tool. All over the world, educators are finding that if they have useful educational videos, they can find the equipment to show them. And a good dramatic cartoon continues to entertain audiences after repeated viewings. Field workers from a project in Santa Cruz, Bolivia, tell us their kids have asked to see *Los Ninos Karatecas* enough times that they know many scenes by heart.

Discussing Sensitive Issues

As difficult as it is for most people, the AIDS pandemic is forcing teachers, health professionals, and youth workers to become sexual health educators. They need good material that can help them talk to their clients and students about sex, HIV/AIDS, condoms, and related issues such as sexual exploitation and intravenous drug abuse. The ***Karate Kids*** cartoon attempts to address these issues (with the exception of IV drug use, but this subject is discussed on the video sleeve and in the *Karate Kids Book* that comes with the video). The cartoon is designed as a discussion "trigger" video—a tool that engages the audience and provokes questions. It can be used to talk about all three main aspects of adolescent sexual health with young audiences: control of STD (Sexually Transmitted Diseases) including HIV, family planning (specifically condom use), and the prevention of sexual abuse through awareness, peer loyalty, and self-respect.

Field Evaluation

After three years in distribution, field evaluation has shown that the greatest strength of the ***Karate Kids*** video is its ability to stimulate discussion, often where no discussion was taking place before. Educators in Brazil, Mexico, Canada, Tanzania and Thailand report that the cartoon triggers lively dialogue about sexual health, street life, and AIDS, often for the first time. CARE workers in Ethiopia report, for example, that viewers are more willing to participate in condom demonstrations after seeing the cartoon. Since the material is explicit, it is, however, most useful in the hands of educators who are comfortable with the subject matter.

Karate Kids has provoked some criticism—first, from authorities who do not accept the need for this kind of sex education for youth, and second, from people who feel that it should stand alone as a comprehensive AIDS education "lecture" on video. One evaluation study of the immediate impact of the cartoon on knowledge and attitudes of children indicates that ***Karate Kids*** alone does not provide a complete AIDS education lesson. On the other hand, a cross-cultural Participatory Evaluation Survey indicates that significant impact on knowledge and attitudes is achieved when there is opportunity for a discussion after showing the video.

A subtle but significant contribution of this project to development communication is not only that it teaches street kids valuable information they need to know, but it treats them with respect, in a voice that they can relate to on their own terms. It acknowledges street children as actors rather than victims, with legitimate needs and rights, and renders them visible in a world that too often ignores them.

Showing the Video

Before showing ***Karate Kids*** to others, educators are encouraged to look at the video more than once, and to read the instruction sheet that is printed on the video sleeve. The educator should also read the manual that comes with the video, *The Karate Kids Book: What We Need to Know About AIDS*. The manual is written in very simple language with good illustrations, and provides a complete reference guide for talking about HIV/AIDS. It is co-written by Dr. David Werner, internationally known for his health care handbook, *Where There Is No Doctor*. It may also be a good idea to talk about the material with friends and co-workers to become more comfortable with the storyline. The adventure story in ***Karate Kids*** deals with day-to-day survival, and the drama focuses on the threat of sexual exploitation that many poor kids, not just street kids, must face every day.

The creators of the cartoon have always said that ***Karate Kids*** is effective in anyone's hands, because it has its own immune system: humor. This is basically true, but there are some ways that ***Karate Kids*** can be used less effectively. A common mistake educators make with any high-impact video is to begin showing it without really developing their own ability to talk about the issues that it raises. Some people think that a video should relieve the educator, and they try to use ***Karate Kids*** as a distraction or an AIDS lesson. On the contrary, the video "breaks the ice" for discussion of issues such as sexual diseases, condom use, and sexual exploitation of children by adults. If an educator does not become familiar with these issues from the kids' point of view, then he or she may be ill-equipped to respond to the needs that the cartoon reveals.

Dignity and Wonder

One of the best screenings of the video that I have attended was in Guadalajara, Mexico. Mauro Rojelio Padilla had seen the video and was very comfortable with the subject matter. He showed the cartoon to a group of 25 street boys, aged from 8 to 17 years old. After a warm but serious introduction, he put on the tape and stepped aside to watch it with the kids. Twice during the showing, at very dramatic moments in the story, Rojelio got up and stopped the tape to ask the group, "Who is this person? What will happen next? What would you do now?" The kids were on the edge of their seats and gave him some remarkable answers. When the cartoon was over, there was discussion about key issues such as condom use that lasted for another 30 minutes. The memorable aspect of the session was the way that Rojelio used the "pause" button on the VCR to engage the kids, to grab them at the height of their attention and make them think. The mark of a good educator, it is a technique that anyone can use.

Kids at the ALMA Project in Guadalajara, Mexico, watch *Karate Kids* for the first time.

Young viewers identify with elements of both tragedy and triumph in the story, and are left in a state of excitement at the end of it. This is an important moment for the youth worker, because the kids are engaged and open to the possibility of new understanding. Watching *Karate Kids*, street kids see themselves on TV for the first time. The characters in the cartoon have dignity, they take care of themselves and their friends, and they have personal power to meet the challenges of the street. ■

The *Karate Kids* video is available in English, Spanish, French, Thai, Portuguese (Brazilian), Haitian Creole, Bambara, Tagalog, Ouolof, Moore, Pruhl, Kiswahili, Vietnamese, Hindi, Lithuanian, Romanian, edited English (no F-word) and Aboriginal story teller. Video formats include VHS, Beta, U-matic, and Betacam-SP.

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Script Writing for Interactive Radio Instruction

By Esta de Fossard

Interactive radio instruction (IRI) has proven to be a valuable and relatively inexpensive learning strategy in formal classrooms, informal classrooms, community learning projects and other educational settings. The success of the radio program, however, depends in large part on the success of the script.

Across learning sites and project goals, radio scripts have some fundamental needs in common. The following guidelines might help ensure that radio scripts are covering the fundamental needs.

Guidelines

1. Thorough and careful planning. Script writers, content specialists and the project director together must establish absolutely clear objectives for each program. There must be explicit details of content needed to allow these objectives to be taught.

The following objectives, for example, are **not** clear enough to act as guidelines for the script writer:

Teachers will know:

- the importance of using resources in the classroom;
- how to arrange resources correctly in the classroom.

The writer cannot write an effective script without knowing:

- what is meant by the word "resources"
- are these resources provided for the teacher, or must the teacher or the students make or provide them
- should the script tell the teachers HOW to collect resources
- what is meant by "the correct arrangement"
- whether the script should talk only about *principles of correct arrangement*, and not provide any examples at all

Many other questions need to be answered before the writers could write an appropriate script to meet those vague objectives.

Writers should never begin work on a script if they have any doubts about what they should include.

2. Standard format. Before beginning to write the first script in a series, the writers should establish a standard format and standard characters. Writers are sometimes tempted to think that using a standard format throughout a series will be boring for the audience. Confusion, however, is considerably more boring than standardization. Consider daily news broadcasts on television or radio. We all expect these broadcasts to follow the same format every day. The format does not bore us, because the content within that format is different every day.

Like newscasts, the educational broadcast format can contain a number of different segments which always appear in the same order. The contents of each segment, however, vary from program to program and provide variety. A standard format is not boring if the contents within it are not boring.

3. Standard teacher(s) — never more than two. The same principle of standardization applies to the "teacher(s)" to be used in the series. It should be clear to the audience, from the outset, who the voice(s) of authority are. In general, it is more successful if one person only speaks directly to the listening audience. Often there is a temptation to use two teachers -- a man and a woman—to provide variety. The use of one teacher is less confusing, and never boring if that teacher is an interesting person.

4. **Limit the number of other characters.** While there should be only one teacher in an interactive radio script, there may be other characters in the program -- but the number should be limited. Let your audience get to know a small group (3 or 4) people well. Provide these people with clearly identifiable characteristics. Bring in other occasional characters if you need to, but don't overdo it. A small group of intimate friends is more comfortable than a constant stream of strangers in our lives.

5. Teach, Try, Test. In every script be sure that you:

- ❖ alert the students to the lesson topic in the beginning.
- ❖ **TEACH** the concept thoroughly (even if subtly)
- ❖ give students a chance to **TRY** (practice) what you have taught through drills, activities, questions, etc.
- ❖ **TEST** only what has been taught and tried
- ❖ After testing, provide immediate reinforcement of the correct answer.

6. **Keep your teaching objective in mind at all times.** Be sure your teaching point is not overwhelmed by your story line. Keep a check on yourself by providing a list of listening objectives for your students before the story or drama begins. These objectives will direct the students' attention to the points they should listen for in the story. For example,

CLARA: *Students, listen to find out how many children the farmer and his wife have, and to find out why they are having trouble raising their children.*

Such listening objectives will assist your students to concentrate on the story, and will help ensure that you keep the objectives in mind as you write. At the end of the story, ask questions related to these objectives.

7. **Present small amounts of information at one time.** A good educational script—whether for formal or informal education—should present no more than 3 discrete objectives. In a 15-20 minute timeframe (the usual length of an educational broadcast), it is hard for a student to absorb, practice and learn more than three objectives.

Interactivity and Interactive Radio Instruction

The word "interactive" in the term "Interactive Radio Instruction" (IRI) has numerous interpretations. Styles of interactivity which can be employed to encourage students to give responses to radio instruction include:

1. ***Immediate, continuous response.*** Students respond to radio-directed questions as often as once every 20-30 seconds throughout the program. This is most valuably employed in formal education and is particularly suited to subjects such as mathematics and language where drill learning is effective.
2. ***Listen-to-find-the-answer response.*** Students listen to a specific piece of information—perhaps in story or dramatic form -- in which they are asked to find answers to particular questions. The careful listening is part of the interactivity. Students are advised in advance what to listen for, and given three or four carefully structured questions at the end of the information piece.
3. ***Written assignment response.*** Students have print assignments which they read prior to the broadcast. During the broadcast, they listen for answers to particular questions posed in the print assignment. Where the broadcast is given in conjunction with a school, the answer may be sent to that institution for grading. Alternatively, the answers to the written assignment can be given during the broadcast program.
4. ***The program newsletter.*** This works well with adult programming, such as teacher training. Listeners are invited to submit letters, comments and questions to a weekly or monthly newsletter (print or broadcast) in response to lessons and questions raised during the program.
5. ***Listeners' letters.*** Useful for various types of community and informal education, listeners are invited to respond by letter (or by telephone where it is available) to questions and problems discussed in the program. Listeners may be invited to give opinion responses, or they may be asked to research specific facts as part of the response.

8. Ask the right questions. Questioning is an important part of interactive instruction. The type of questioning that can be used in IRI is, in some instances quite different from that used in the regular classroom. The classroom teacher can hear responses and correct them immediately if they are wrong. If a listening student gives an incorrect response, however, the radio teacher cannot correct it or guide the student to the correct answer. It is important, therefore, that the radio presents both the information and the questions about it in such a way that it is almost impossible for the listener's answer to be off-track.
example:

RUDI: *In that story we heard how trees are important to human life because they provide people with shade and timber, because they bind the soil and keep it from being lost, and because they absorb carbon dioxide from the atmosphere. Listeners, tell me what two things do trees provide for us?*
PAUSE FOR RESPONSE

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Script Writing, cont'd from p.15

RUDI: *Shade and timber; trees provide shade and timber. Now listeners, tell me, what two things do trees do for soil?*
PAUSE FOR RESPONSE

RUDI: *Bind it and keep it from being lost. That's right. Now listeners, tell me, what do trees absorb from the atmosphere?*
PAUSE FOR RESPONSE

RUDI: *Carbon dioxide. Correct.*

The questions are based on information already clearly given. Moreover, the information has been presented close to the asking of the question. It is hard for students to be asked to provide answers from information given many minutes earlier in the script.

Questions must be clear and unambiguous. Avoid the following:

- Questions that require more than one answer. For example, "Students, why is Carlos lost in the woods? Or do you think he will still find his way out?" In this example, the students will not know which question to answer, so probably they will answer neither.
- Questions that require only "Yes" or "No" for an answer. Very little, if any, learning is done by answering a question of that type.
- Questions that require sentence completion. "The right way to brush your teeth is..." Students may not be sure when they should begin to answer. Open-ended questions can be used, provided they cover material within a limited range. For example: "Tell me ten things you would buy in a supermarket." This question is non-specific but the answers are limited to a particular range of possibilities.

...evaluation team tries [illegible] versions of the programs we train with a sample

It is not helpful in IRI to ask a completely open question such as, "How do you think electricity works?" The problem with this type of question is that the radio teacher cannot hear the responses and therefore cannot respond to them, or offer helpful suggestions if the answers are too far off.

The radio teacher should use exactly the same CUE every time a question is to be asked, so students know exactly when to respond. For example, the radio teacher can say, "Students, please tell me..." every time he wants the students to answer. This cue must be followed immediately by the question; then a pause for the listeners to answer. Then, immediately after the pause, the radio teacher must provide the correct answer. If you wish to reinforce the students with words such as "Good," "Yes," "Thank you," put these words AFTER the correct response. For example:

TEACHER: *Students, please tell me...what is the English word for "mesa"?*
PAUSE FOR RESPONSE

TEACHER: *"Table." That is correct.*

Do not give the reinforcement words before the answer. If your students have given an incorrect response, you do not want to reinforce it accidentally.

9. Avoid negative models. If you are using a story or a drama to illustrate a teaching point, it is better to use a positive model that demonstrates what you DO want the audience to learn than to use a negative model showing the behavior which you expect the audience to shun.

10. Try out your script. Make a habit of reading your scripts aloud to colleagues, and asking them to respond every time you come to a question. If they are quite unable to answer correctly, you should revise either the questions, or the material on which they are based.

11. Avoid over-use of your medium. Be careful that you do not rely unduly on such things as sound effects and music in your script. They are often more confusing than helpful. It is better to use too few sound effects than too many. Use music sparingly.

12. Keep the writing style simple, especially in the beginning. The main point of your script is to assist someone to learn. Keep your audience in mind at all times and write as simply and clearly as you can to make your point. Once you are confident that your scripts are really "working" for your audience, you can begin to add more details of character and drama. ■

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Interactivity and Soft Technologies: Peer Group Learning Systems

Rick Rinehart

by Aida Pasigna

The school looked just like any of the over 30,000 other primary schools in Thailand with the flag waving high over the well-kept schoolyard. With the flag-raising ceremonies and the morning prayers to Buddha complete, the orderly queues of students move briskly into their respective classrooms. But when an observer follows a queue of fifth graders into their classroom, the observer soon realizes that this is not a "typical" classroom with desks positioned in neat rows facing forward towards the teacher.

Inside the classroom, the children gather in groups of four to six pupils around small tables, get their books out and begin working together on a lesson started the previous day. Even without understanding Thai, it is clear that each group has a leader and a secretary. The leader of one group instructs the members to read the text on a given page and discuss answers to questions on another. A lively discussion ensues as some students seem to have differing opinions about answers. After a few minutes, the secretary scribbles away on a sheet of lined paper what appears to be the group's answers— a consensus has been reached.

All the other small groups are similarly engaged. The teacher moves from one group to the next, responding to children's questions. Finally, the teacher stops the activity and the group leaders take turns going to the front of the class and reading their "group report." Each report is followed by a comment from the teacher and a round of applause from the rest of the class.

The classroom described above belonged to one of Thailand's more than 10,000 "small schools" only a few weeks after they opened in 1988. These schools used specially-designed instructional materials and a management system developed under the "Reduced Instructional Time" (RIT) Project to improve the quality of education in small rural schools. This classroom scene demonstrates how innovative soft technologies—in this case, peer group learning (PGL) —can and have changed teaching-learning behaviors in many primary schools of third world countries.

Low-Cost Learning Systems

In the mid-seventies and the eighties, several Third World countries undertook national and regional projects designed to solve common problems of poor quality of instruction in their primary schools. **Efficiency-oriented alternative instructional systems** were thus developed and later referred to as "Low-Cost Learning" (LCL) systems. In many cases, the alternative LCL Systems produced and implemented interactive soft technologies such as peer group learning which have proven to be highly effective in reaching education goals.

Soft technologies, or the know-how and tools that can be applied without computers, radios and other hard technologies, can alter the style of interaction between teacher and students—and indeed, between the students themselves. Examples of soft technologies include instructional design techniques, organizational and management methods, peer tutoring, interactive systems of instruction, conventional devices such as chalkboards, textbooks, posters, programmed learning materials, programmed teaching modules, instructional games, and simulation and role-playing materials. Some soft technologies focus totally on providing guidance to the teacher, such as ready-made lesson plans, teacher's manuals that accompany textbooks, and various job aids.

Innovative soft learning technologies used in the LCL systems were designed to make primary education both **effective** and **economical** in view of the tight budgetary constraints within which these countries have to operate. The LCL systems include: (a) the Philippines' IMPACT (Instructional Management by Parents, Community and Teachers), (b) Indonesia's PAMONG (**P**endidikan **A**nak oleh **M**asyarakat, **O**rang tua Murid, da**N** **G**uru), (c) Liberia's IEL (Improved Efficiency of Learning), or PEP (Primary Education Project), and (d) Thailand's RIT (Reduced Instructional Time). Adaptations of soft learning technologies used in these systems have been used by other countries, such as Malaysia, Jamaica, Belize, Honduras, and

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Rick Rinehart

Swaziland, to improve their own educational systems.

Interactivity Essential to Peer Group Learning

Interactivity is a key feature of the soft learning technologies used in the LCL systems. The best learning strategies are guided by logically sequenced instructional content and systematically designed teaching-learning activities and they almost always play off well-coordinated interaction in the classroom. Peer learning systems, for example, optimize the use of interactivity in the following ways:

- Stimulus-response loop maximized (i.e., frequent student responses required).
- Interpersonal skills enhanced (e.g., leadership and membership skills are developed and refined by the group study procedures).
- Social/communication skills enhanced (i.e., frequent discussions required).
- Leadership opportunities maximized (ie., all students take turns in assuming the leadership role).
- Leadership roles are no longer the exclusive privilege/right of the smartest kids in the class.
- Time on task maximized.
- Student involvement in education process maximized.
- Systematic instructional design applied in the development of programmed learning modules used in PGL ensures meaningful interaction among learners and between the learners and their facilitator(s).
- Inclusion of immediate "suggested" feedback followed by group discussion optimizes learning guidance without imposing rigid limitations to other possible "correct" answers.
- Provision of instructions and group study procedures provide structure without limiting interaction.

Like Many Interactive Strategies, PGL Must Be Monitored!

When used with primary school students, PGL should be closely monitored and supervised by the teacher or at least by a teacher aide such as a paraprofessional, older student, or community volunteer. If left unsupervised for a long time, peer group activities might be disrupted by unruly behavior among students, or students may not be able to proceed if they have unresolved questions.

Peer group learning, like most other soft technologies, must be structured in order to be effective. One cannot leave peer groups completely to their own devices. Systematically designed instructional modules which have been successfully used in LCL systems, such as the Liberian IEL/PEP system, allow the students many chances to experience different types of discussions by controlling the types of questions asked. Students are given sufficient opportunities to ask their own questions and discuss answers to open-ended questions that have no "right" or "wrong" answers but which require the students to draw upon their own specific situation and experience. Throughout the modules students are systematically guided through the learning experience by questions that gradually progress from the factual to those that require higher level intellectual processing and practice in the use of more sophisticated cognitive strategies.

Other Applications of PGL

Teacher Training. Peer group learning strategies were recently found to be effective for providing activities and delivering initial training to prepare Swaziland's primary school teachers and head teachers for the implementation of a new educational program. Given the vast number of teachers and head teachers who were to be trained over a two-week period and the small pool of trainers available, the use of programmed learning modules and peer group learning strategies proved to be the best alternative to the pure lecture method of delivering training. Greater participant involvement in the actual training activities made it possible for ten to twelve trainers to successfully train more than 250 workshop participants over a two-week period in each of the country's four school regions. Systematically-designed, self-contained programmed learning modules which guided group leaders and members as they learned new concepts, processes, methods, and techniques made the difference.

Distance Education. If it is built into programmed learning modules for use in distance education, PGL can help minimize feelings of isolation that tend to lower motivation levels among students who might otherwise progress faster if they could get together with others working on the same module, even without the presence of a tutor. PGL will give them a structure within which they can discuss insights and experiences among themselves that could make learning more meaningful and long-term retention stronger. ■

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The Change-makers: Women and Media

'A woman at a conference may address a thousand people; that women's voice amplified by the media can address a million.'

(Media Mentor Group for the Global Assembly on Women and the Environment, 11/91)

We know that media in all their forms—radio, print, video, mass alternative, popular—can educate, mobilize support, and initiate action. Now there are women's information networks designed to give women a voice and the opportunity to share knowledge.

The cover of an issue of *The Tribune* focusing on 'Women Moving Appropriate Technology Ahead,' showed a Thai woman riding a bicycle. The group who had produced the newsletter received a letter from the man in Thailand who had drawn a similar illustration featuring a man, from which the cover had been adapted, saying that the graphic was 'interesting but unrealistic' as women in Thailand never ride bicycles. But the group also heard from Thai women who said that the image reminded them that women riding bicycles was indeed a possibility. On a trip to Thailand some years later, a member of the group noticed many women riding bicycles.

Although *The Tribune* does not take credit for women in Thailand beginning to ride bicycles, the story does illustrate that something as simple as a picture can communicate a revolutionary idea about the potential uses of technology. Once you have seen a picture of a woman on a bike, it is easier to imagine riding one yourself.

Women are adapting media to fit their work, whether it be basic education and communication or political action and advocacy, demystifying legal and technical resource information, or the translation of technical language into a form accessible to women. Innovative uses of media by women include:

- **Women's Feature Service (WFS),** an international news service, investigates women's activities overlooked by the mainstream press and sends stories to mainstream news outlets. WFS plans to use video when working with groups with limited reading abilities.
- **NGONET,** a Southern information clearinghouse, collects and edits environmental and development information from NGOs and then disseminates it globally via electronic networks. NGONET is not women-specific, but seeks to improve women's access to electronic networks. NGONET has plans to make information more available using community radio and other media.
- **COMULHER,** a women's video group in Brazil, makes videos by, for and about women.
- **WOMENET,** a recently established network of women's media groups, is linked by phone, mail and fax. WOMENET members 'faxnet' on a monthly basis to share information on new initiatives and activities.
- **TAWMA,** the Tanzanian Women's Media Association, is an association of media women involved in projects such as gathering women's indigenous knowledge of medicinal plants.

■

Excerpted from Appropriate Technology, vol 19, no. 2, 9/92. It highlighted ideas shared at a session called The Change Makers: Women and the Media organized by the International Women's Tribune Centre (IWTC). For information about these groups, contact IWTC at 777 United Nations Plaza, New York, NY 10017, USA.

Walker/IWTC

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Forum Theater in Burkina Faso: Paving the Way for Dialogue, Interactivity and Change

by Joy Morrison

Villagers in Burkina Faso, West Africa love performances, and while learning and providing entertainment for the village, they communicate many things to rural healthcare workers.

Forum theater, a unique form of rural performance, is one method used to communicate new ideas. It is highly participatory and is specifically designed to permit and encourage active feedback from audiences. The theater group Atelier Theatre Burkinabe (ATB) of Ouagadougou in Burkina Faso practice forum theater and because of the successes they have had, other countries in West Africa have begun using forum theater as a vehicle for development communication.

The ideas of the Brazilians Paulo Freire and Augusto Boal have strongly influenced the development of forum theater. Boal developed it as a mechanism for self-liberation of oppressed peoples in San Paolo, Brazil, and in Lima, Peru, and Paolo Freire has used this interactive theater as a process to encourage dialogue in education. While forum theater is didactic in its aim to make a critical analysis of a social or political problem, it should be stressed that the primary goal of forum theater is to transfer information that empowers people.

Morrison

In the play "Fatouma the Baby Machine," Tanga sends Fatouma from his house when she becomes pregnant for the ninth time.

Let the Show Begin

Forum theater performances contain three distinct elements.

1) The actors perform a play, in which social problems are depicted in ways intended to provide a negative reaction from the audience.

2) A moderator invites audience members to re-enact parts of the play that they did not like. Scenes are then redone and spectators engage in role-play, proposing changes in action and dialogue.

3) A verbal exchange takes place between audience, actors, and health officials with the aim of clarifying information.

The role of the moderator is crucial in forum theater. He or she controls the forum, and occasionally interrupts the scene being replayed in order to ask the audience if they agree with the particular point of view being voiced. If the audience disagrees, another volunteer plays it a different way. This continues until the audience is satisfied with the words and actions. The same role could be played several times until a generally acceptable solution is found.

The primary aim of forum theater in Burkina Faso is to engender feedback of all kinds. Participation is the key element to success. When audience input is solicited and received, this two-way flow contributes greatly to its acceptability as a medium of communication. The opinion of healthcare recipients is thus solicited and received in a constructive environment. Spectators, usually children, are also asked to respond to questions concerning the content of the play. Through this feedback, recall can be measured.

"Fatouma, the Baby Machine": A Dramatic Family Planning Project.

ATB performances are a development communication success story. In 1986, the Government of Burkina Faso decreed a five- year plan to promote birth control to lower the high birth rate. In 1988, the Burkinabe Ministry of Health and Social Action (MHSA) obtained funding for a family planning play as part of a public campaign. "Fatouma, la machine aux enfants" (the baby machine) was performed from January until May 1989. The formal performance lasted an hour and the forum was anywhere from one hour to three hours long.

The play was a collective creation of the ATB and concerns Fatouma and Tanga, a young couple who marry and produce a child who is welcomed and celebrated. In the second year of marriage, another child is born and a third the following year. After eight years and eight children, the marriage is in ruins due to problems created by Fatouma's refusing Tanga's sexual advances.

The children are in rags and food is scarce. Still, Tanga's father convinces him to continue enlarging his family because of the extra labor provided by children and the status gained by large families. The topic of AIDS is introduced when the husband seeks out pros-

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titutes, thus making the connection between contraception and safe sex. Finally, a health care worker visits Fatouma and discusses various contraceptive options in graphic detail. Her husband however refuses to talk about this with her. Instead, he seeks a contraceptive "belt" for her from a local healer for her to wear during sex with him. He then expels her from his house when she becomes pregnant, accusing her of infidelity. The play ends with her expulsion from the compound, a physically weak and broken woman.

How Does Forum Theater Work?

Forum theater works for development communication because:

- It has the ability to deal with sensitive topics through role-playing and discussion. This combination makes certain taboo subjects allowable.
- The theater-in-the-round spatial arrangement that the ATB employs when performing is conducive to participation. The non-threatening nature of the forum encourages input.
- The forum offers an opportunity for expressing public opinion rarely offered in village settings. It assumes equality among and between participants, with all having equal access to the "stage."
- There is equal treatment of men and women. It offers a rare opportunity for women to speak to their reality within the hypothetical environment of a play.

In the family planning forum presentation, people had a unique opportunity to discuss a normally private topic -- sex. Although sexuality in the cities has moved from the private to the public realm, this is not true in the rural areas. The tension between men and women around the subject of sex and procreation results in a need to air this publicly.

ATB performances have promoted discussion and activity beyond family planning. In 1988, the topic of ATB performances was dehydration and oral rehydration. In 1989, besides "Fatouma," they also performed a play about corruption in government for a management workshop in Burkina Faso. In 1990, ATB produced a drama about the problems of female circumcision. Plays are always sponsored by a partner, usually an NGO or a UN agency.

Morrison

In the play, a healthcare worker shows Fatouma a condom and explains how it is used.

Evaluation Results

An analysis and evaluation of the effectiveness of the forum theater's communication was conducted three to four months after the performances. Each village where the play "Fatouma" was performed, healthcare workers, medical personnel and villagers were asked to recall information about family planning. Teenagers in particular were able to recall most of the scenes, and every respondent was aware of the availability of contraception, and the reasons for its introduction. Although there was not total agreement on adoption of family planning, sales of contraceptive devices had increased everywhere. Villagers in general had new insights into the problem of overpopulation, and the wisdom of birth spacing. There was also unanimous approval of the performance and the forum as a teaching tool.

Healthcare professionals also indicated they had learned a great deal about the feelings and attitudes of rural people concerning family planning. The communication officer for UNICEF reported that "when audience members take positions vis-a-vis the problem, exposing their divergent feelings and opinions, their feedback provides a synthesis of ideas which emerges as a system of dominant thought. This information forms the basis for subsequent healthcare and other social information campaigns."

The ATB forum theater and other forms of traditional participatory media are extremely popular, and therefore, remain effective methods of achieving interaction. The oral traditions of African peoples, their general preference for interpersonal communication, and the tradition of performance are easily conducive to theater as a medium of education and communication. In Burkina Faso, it provides an opportunity for dialogue between people who are powerful and powerless, educated and uneducated, urban and rural, and men and women — a necessary steppingstone for empowerment and development. ■

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What's New, What's Coming

ADDRESS CORRECTION

The address listed for the Developing Countries Farm Radio Network in our last issue, page 13, is outdated. The corrected article follows:

The Developing Countries Farm Radio Network is an information exchange network for rural communicators in developing countries funded by the Canadian International Development Agency and donations from the public. It supplies simple, practical, information aimed at increasing food supplies and improving nutrition and health at the grassroots level. Network participants receive packages of radio scripts four times per year in English, Spanish and French. There is no charge for this service, but participants are asked to comment on each package and suggest scripts topics. For more information contact: 40 Dundas Street West, Box 12, Suite 227B, Toronto, Ontario, Canada M5G 2C2. Telephone/fax (416) 593-3752.

Conferences

The World Assocation for Christian Communication (WACC), Isis International and the International Women's Tribune Centre (IWTC) are organizing a global conference on *Women Empowering Communication* to be held February 12-17, 1994 outside of Bangkok, Thailand. The conference will include communication models, case studies, drama, dance and cultural presentations and working discussions. The conference is open to representatives of womens' groups involved in communication and networking, but is limited to 350-400 participants. To register, contact: WACC, 357 Kennington Lane, London SE11 5QY, UK. tel: (071) 582 9139; fax: (071) 735 0340. Fee: US$250.

The International Conference on Computer-Assisted Education and Training in Developing Countries will take place October 1994 in Pretoria, South Africa. The conference will consist of exhibits, papers by experts in the field, and workshops on interactive video technology and CD-ROM, the development of quality computer-based lessons, creating computer graphics and hypermedia. For information, contact: Johan van Staden, Gold Fields Computer Centre for Education, University of Pretoria, Pretoria 0002, South Africa. fax: 27 (12) 43 6867; e-mail: jcvs@scinet.up.ac.za

Courses

The United Nations Development Programme's Development Training and Communication Planning (UNDP/DTCP) is offering *short training courses* in planning, management, evaluation, training, audio-visuals and communications. The courses are 3-6 weeks in duration and are scheduled from August to December, 1993. For information, contact: The Training Coordinator, DTCP/UNDP, 5th Floor, Bonifacio Building, University of Life Campus, Meralco Avenue, Pasig, Metro Manila, The Philippines. tel: 631-1271; fax: 631-1275.

The Xavier Institute of Communication (XIC) offers a variety of *part-time degree courses* in journalism, public relatins, science communication, advertising and marketing, and film and video production. The academic year runs from July - April. XIC also conducts hands-on workshops for media professionals, community workers, school teachers and children. For more information, contact: XIC, St. Xavier's College, Mahapalika Road, Bombay 400 001 India. tel: 262-13-66.

The International Institute of Rural Reconstruction (IIRR), an organization engaged in sustainable development field work, research and training, is introducing a new four week course called *Media Use in Development* beginning September 1993. The course will take place in Silang, Cavite, the Philippines and will focus on communication principles and strategies. For more information, contact: Ms. Rowena Hidalgo, Division of International Training and Outreach, IIRR, Silang 4118, Cavite, Philippines. fax: (632) 522-24-94.

An excerpt from Controlling Crop Pests and Disease (see right) shows cartoons which can be integrated into training.

Books

The Empowerment of Culture: Development Communication and Popular Media, **edited by Ad Boeren and Kees Epskamp. The Centre for the Study of Education in Developing Countries, P.O. Box 90734, 2509 LS The Hague, The Netherlands. Cost: Dfl. 25,- or US$12.50.**

This 247 page book deals with various media in development support communication projects. It touches upon problems of the effectiveness of the media, its impact, media choices, multi-media approaches and other issues of media use for social change. The media reviewed include pictures, cartoons, photographs, film, music, theater, radio, television and video. Case studies include examples from Indonesia, Zimbabwe, Ghana, the Philippines and countries in the Andes region.

Nutrition Communication in Vitamin A Programs: A Resource Book, **International Vitamin A Consultative Group, The Nutrition Foundation, Inc., 1126 16th Street, NW, Washington, DC 20036 USA. Single copies available free of charge to professionals in developing copies. For others, US$3.50.**

This resource book uses examples and full color photographs to present experiences, visuals and textual information about vitamin A deficiency and communication strategies. The book summarizes basic methods associated with planning, developing and implementing nutrition communication activities and outlines successful efforts in Bangladesh, Brazil, India, Indonesia, Mauritania, Nepal and Thailand. English translations of radio and television scripts are included.

Growing Multi-purpose Trees on Small Farms, **Agribookstore, Winrock International, 1611 N. Kent St., Suite 600, Arlington, VA 22209 USA. US$19.95.**

This diverse communication package contains a training manual, eight training modules and over 50 glossy *species fact cards* with photos and facts about different Southeast Asian plants. The cards and modules were designed to provide understandable technical information to help extension workers respond to farmers' questions on how to grow and manage trees for household uses or for local markets. This and other excellent resources for agricultural communicators are available throughthe Agribookstore.

Appropriate Media for Training and Development, **by Jonathan Zeitlyn. TOOL Publications, Sarphistraat 650, 1018 AV Amsterdam, The Netherlands. tel: 020-626-4409; fax: 020-627-7489. Cost: US$13.50.**

Taking the position that the appropriate media for Third World training and development are people, this book teaches how-to have effective face-to-face communication. Different methods of direct training, media use and interactive teaching styles are explored. Elaborate flow-charts, diagrams and drawings help the reader to visualize the information. Easy to read and useful to communicators at any level.

Controlling Crop Pests and Diseases: A Cartoon Handbook, **by Rosalyn Rappaport, Macmillan Press, Ltd., Houndmills, Basinstoke, Hants RG21 2XS UK. Cost: US$6.99.**

Written for communicators and practitioners of agriculture, this cartoon handbook presents the background knowledge necessary for understanding pests and disease, the agents that cause them and practical control methods in an African village context. The strip cartoons are made to be handouts for trainees or farmers and serve as starting points for the readers own plays, stories or other communication strategy.

Technology

The Sounds of English, **by Irvine Interactive, Inc. 4521 Campus Drive, Suite 236, Irvine, CA 92715 USA. tel: (619) 431-8860. Requires: Macintosh Computer-Plus or above. 2 Mb RAM, and a hard disk. US$45 per module. (two modules: Consonants and Vowels).**

This computer software was designed to be used with a Macintosh computer with Hypercard. The software teaches English through animation, sound, games and graphics. The basic Hypercard program (standard on most Macintosh computers) allows the computer to pronounce the sounds of English alongside an image of moving lips on the screen. The games help the learner to distinguish between difficult sounds and vocabulary. With the addition of Apple Microphone, the user can record his/her own voice. Excellent for universities, schools, training programs, or individuals.

Development Communication Digest, **by the Clearinghouse for Development Communication, 1815 N. Ft. Myer Drive, Arlington, VA 22209 USA. tel: (703) 527-5546; fax: (703) 527-4661. Requires: IBM compatible PC. (HyPlus software not needed).**

The Digest is a synopsis on diskette of information and lessons learned from 135 development communication projects. It uses HyPlus software and the complete set is available on one high density 3 1/2" disk. The Digest allows users to search through projects by sector, technology, communication strategy and region. Each project analysis includes the project type (sector), country, agencies involved, media used, project duration, the problem, objectives, target populations, strategy, overview, results and bibliography. A useful resource guide for planners, practitioners and researchers.

Adult Literacy is Important... But How Can We Use More Interactive Methods?

yes but...

by José Cárleton Corrales

dult literacy is essentially a third world problem. Although there are illiterate people in industrialized nations, 95% live in developing countries. The failure rate of adult education programs is said to be about 90%. Good research and well designed, funded and evaluated programs are scarce.

Nevertheless, stimulating and promising research is being conducted. All studies seem to confirm that female literacy is highly correlated with child survival, child spacing and decreased birthrates, schooling success, and reduced poverty. A high correlation also exists between the level of literacy and productivity with relatively fewer job related accidents and less absenteeism. The relationship between the degree of the country's economic development and its level of schooling has always been assumed to be high, but it is only recently, with studies of the level of skills required in the labor force to sustain growth, that this issue has become more widely recognized.

Where can we turn to increase adult literacy?

Experience shows that media development communication programs designed to promote interactivity can change behavior in adults. The best example is the cholera epidemic. At the same time, radio education programs designed to be instructional can increase learning and literacy in children. Why, then, is it that adult education programs do not use these more modern, interactive methods? And when they do, how should they be they different from similar programs targeted towards a younger audience?

Inspiring Interactivity in Adults: Some Lessons Learned

The LearnTech/Adult Basic Education Project in Honduras, funded by the Agency for International Development, has experimented with using interactive radio instruction for adult literacy. With local people as radio monitors and the participation of local authorities in program promotion and coordination, the project has been able to promote the interactive participation of adults in radio lessons using the radio lesson as the main medium of instruction. Lessons learned include:

1. Do not replicate formal schooling. With financial constraints and a lack of well tested alternatives, attempting to replicate formal education is perhaps the most common mistake in adult education. Instead, a systematic approach which eliminates emergency or one shot literacy campaigns and concentrates more on alternative systems for adults must be planned from the onset. Interactive radio instruction, a well developed radio methodology, and the widespread availability of radios worldwide makes this path worth considering.

2. Develop basic research as a tool to be in close contact with the target audience. The best judges of the quality, effectiveness, appeal and attractiveness of a program are the users. In order to collect and analyze their feedback and learning levels, formative and summative evaluations are critical. Evaluators help project monitoring and ensure quality radio lessons. They also serve as a system of accountability on the effective use and management of the resources.

3. The old ways of doing things are not always the best. Rather than sticking to old methods of funding, the decentralization model, community participation, student payment of part of their education cost, private company participation in sharing the costs, forms of packaging that might increase the appeal or acceptance of the project, and social marketing for "selling" alternative approaches may increase success. Adult education programs have tended to rely too much on government funding.

4. Long term sustainability should be a concern from the beginning. Project institutionalization, the development of good quality media and instruction (printed materials, radio, etc.), a good delivery system, and a well defined source of payment and future growth help provide the basis for sustainability.

5. Adults will become interactive when given the opportunity. When education programs are designed to guide a learner through an activity and give him or her concrete choices and time to respond, an adult learner will become involved and interact. Evidence in Honduras suggests that adults will answer a prepackaged radio question aloud—perhaps even more often than the same question asked by a real person. This type of attention and practice is the foundation for active learning.

6. Like children, adults need structure in learning. While adults may have stronger abilities conceptually, they, like children, still need structure in learning specific tasks. Therefore, the LearnTech/Honduras radio lesson is divided in two parts: About 75% of the lesson follows an interactive radio instruction design. This methodology is highly structured and is quite effective in mathematics and reading and writing. Usually the radio character mimics a regular classroom teacher. Every step is highly predictable to the student. The remaining 25% of the lesson is dedicated to social values. The methodology follows the design of a mini drama series. The series models new values in the family, the environment, the role of women and the care and rights of children, and then asks questions at the end of each show.

7. Investment in education pays off. Although middle class parents have been strong advocates of upward mobility through education, not until recently has this perspective begun to filter down to the illiterate population. Although there may be some questions about why these trends are taking place, the fact remains that there is increased motivation in adults who invest in their own education. With adults making investments in their education, educational designers need to be creating modern interactive systems that work.

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Development Communication Report

To Our Readers:

This DCR concentrates on multi-channel learning, an innovative approach to education for all which emerges from the integration of research and experiences in educational reform, distance education and development communication. Also included are articles on the rural press in Kenya, understanding e-mail, and the results from the 1993 Readers' Survey.

The Clearinghouse is currently undergoing a transition which may slow down delivery of your DCR. Please be patient with us. We'll keep you posted!

Anzalone

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Survey results and list of free publications inside!!

Expanding the Vision of Basic Education through Multi-Channel Learning

To serve the basic learning needs of all requires more than a recommitment to basic education as it now exists. What is needed is an "expanded vision" that surpasses present resource levels, institutional structures, curricula, and conventional delivery systems while building on the best in current practices. New possibilities exist today which result from the convergence of the increase in information and the unprecedented capacity to communicate. We must seize them with creativity and a determination for increased effectiveness.

— World Declaration on Education for All

Over three years ago, representatives of the international educational community meeting in Jomtien, Thailand, committed

continued on p.2

Multi-Channel Solutions: The Prospects of Open Secondary Education

The demand for good quality low-cost secondary schools in developing countries is growing. If the goals set forth for education for all are achieved and more and more students graduate from primary schools, the competition and pressure for scarce places in secondary schools promises to increase even further. Governments, international organizations and communities must begin to look at innovative and low-cost solutions to fulfill the expanding need for secondary education. Looking at diversifying the channels used for education is one viable approach.

The Need for New Educational Channels

The movement towards education

continued on p.5

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expanding the vision, cont'd from page 1

themselves to an "expanded vision" of basic education. Today, the vision remains just that--a vision. Without being fully operationalized, it has not made significant mark on the educational experiences in developing countries. The time has come to get on with it.

Until now, visions of educational reform have been marked by an often unrewarded faith in the potential impact of one or two key educational ingredients — doing the new x in place of the old y, training teachers to acquire a set of new and allegedly more effective behaviors, getting the right textbooks (or even getting textbooks) into schools, translating curriculum into appealing media, and so on. Unfortunately, until now it has often made good sense to adhere to these simple recipes for change.

We can do more than affirm the need and possibilities for an expanded vision of basic education. We can offer a perspective that will assist in infusing this vision into more productive educational practice.

A Multi-Channel Learning Approach

Multi-channel learning is founded on two major types of knowledge and experience: (a) focusing on learning and (b) bringing forward and combining insights and capabilities achieved from experience in education, communication and distance education. It is founded on the conviction that the chances for effective learning are increased when more than one *learning channel* is used and when educational delivery is deliberate and well-planned. Multi-channel learning encourages a greater integration of educational programs and materials for children, youth, and adults whether they are learning in school, at a distance, or in programs unrelated to school.

Learning Channels

Learning channels are the various means that connect learners with sources of knowledge, skills, and information in the community and beyond. They permit connections with teachers near and far, other learners, instructional materials, family members, and distant ideas and technologies. Some learning channels rely on channels of mass communications and other educational media, while others are the more customary means of exchanging knowledge employed in formal and nonformal education.

Efforts to improve basic education typically aim at providing textbooks or other instructional materials. Knowledge is meant to pass through the learning channel of printed materials mediated by the teacher. The student is expected to "acquire" the content either by reading the material or by hearing the teacher's oral rendition of it. The student essentially is provided one avenue towards understanding. The odds of success are greatly diminished if there is a lack of necessary prior knowledge, poorly written text materials, or a poor teacher. Chances for success are further reduced when materials are not well-written or are in a poorly understood second language.

Learning through multiple channels, on the other hand, enhances educational access, quality, and equity. Strategies for educational reform that continue to rely exclusively or predominantly on one learning channel are not likely to offer much change. We must prepare to hurdle these obstacles to learning by integrating and diversifying learning channels— perhaps through radio programs, group work, discussions, games, stories, contacts with community members, visual aids, or additional printed materials.

Focusing on Learning

Through research and experience, we are gaining a much better understanding of the process of learning. For example, growing evidence shows that students tend to be makers rather than receivers of knowledge. Much of one's ability to construct new knowledge depends on what he or she already knows. Those who are rich in knowledge are better able to solve problems and apply it to new situations. There is also increasing evidence that cognitive learning is shaped by the social circumstances in which new knowledge and skills are being constructed.

Our growing understanding of the learning process means that learning channels

Key elements of the expanded vision of basic education include:

- ***universalizing access and promoting equity;***
- ***focusing on learning;***
- ***broadening the means and scope of basic education;***
- ***enhancing the environment for learning; and***
- ***strengthening partnerships.***

must not be seen as conduits for a one way flow of knowledge from the haves to the have-nots with only occasional opportunities for feedback. Rather, learning channels must operate in a manner that helps the learner become actively involved in constructing new knowledge.

We surmise that deficiency in prior knowledge is one of the major obstacles to learning — especially in developing countries where the culture of the school and the content of education is often at great odds with the culture of the home and community. The use of multiple channels, especially when there is a purposeful alignment of educational content and activity across channels, increases the opportunities to activate knowledge learners already have and to provide information learners might need in order to construct new knowledge.

Combining Insights and Capabilities

In the past five years, the field of distance education has grown and diversified at an astonishing rate. Now much more credible in the eyes of policy makers and the public, distance education provides educational opportunities for millions of students worldwide and has developed a breadth of research and expertise.

Although much of distance education has been undertaken at the level of higher education, insights and capabilities that have grown through the years will be important in designing programs for basic education. Increasingly, *distance* is no longer the only issue. Many distance education programs are evolving into systems of open learning, and the boundaries between conventional and distance education are crumbling.

Growing student age populations and rising costs will continue to make distance education an attractive option for delivering education at all levels. One of the consequences of education for all, as Paud Murphy reports on page 1, will be the increased demand for secondary education which cannot be met through expanding conventional secondary schools. The use of distance or open learning systems offers an option. And given that the students that would be attracted to these programs are often the least well prepared to function as independent learners — something demanded by distance and open learning— the case for utilizing multiple learning channels is inescapable.

Much has also been learned from experience in using educational media, both for in-school and out-of-school use. For example, the growing number of countries using the interactive radio approach shows that radio is becoming a reliable tool of basic education, important in many multi-channel learning efforts. Furthermore, experience in developing educational media messages in health, nutrition, agriculture, population, and environmental protection shows the power of the discipline of development communication.

The multi-channel learning approach

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Distance education techniques, such as radio or postal delivery systems, can be integrated into other more conventional education techniques.

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draws upon the media professionals' growing maturity in their outlook on what media can and cannot do. The overselling of media of the past is giving way to more balanced views. We have learned that it is important for media developers not to propose "better alternative" instruction and then try to persuade decisionmakers that it should be inserted into the curriculum as an addition or as a replacement for what is conventionally offered. The multi-channel approach must place development of media in the educational mainstream. Their efforts must become part of larger, ongoing processes of school organization and management, curriculum development, teacher education, supervision, and textbook and materials development. This is a messy world that many of us have avoided in the past.

We have also learned from successful uses of educational media that it is possible to design programs that make it possible to reach more than one audience at once. Adults may learn in an inoffensive and sometimes unconscious manner from programs designed for children and young people. Often the reverse is also true. This learning can be mutually reinforcing. Multi-channel learning will try to encourage applications that break down the often artificial walls between formal and nonformal education, between education for adults and the young.

Looking Forward

Multi-channel learning will not, we hope, come to be seen as but one more in an endless series of new fixes promising that one right solution to educational problems near and far. First, multi-channel learning is not new. Second, multi-channel learning is not itself a fix in that it does not prescribe new content or means of delivery. Rather, it is a means to make new or existing programs achieve greater quality or outreach by diversifying the paths to learning. Third, multi-channel learning offers an opportunity to reach those groups whose educational needs are traditionally unmet either because they are too remote or too unusual.

The days remaining for us to achieve the goals set forth at Jomtien are quickly slipping away. We need to review our efforts to shape the expanded vision of basic education. The multi-channel learning approach offers an appropriate means toward implementing the expanded vision. Getting from vision to reality is an immense challenge — but not an impossible one.

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The International Multi-Channel Action Group for Education is a newly formed international partnership of institutions seeking to encourage the incorporation of multi-channel learning approaches into efforts to achieve Education for All. It was formed in October 1992 at a meeting convened at UNESCO Headquarters in Paris. For more information contact:

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for all is likely to increase the pressure on the demand for secondary school places for a number of reasons. As primary schooling becomes more efficient, a larger percentage of those students starting school are likely to complete their primary education. The numberin the age range is likely to also continue to increase. This growth is worldwide, yet most dramatic in Africa where the relative population of pupils completing primary schools is increasing each year.

A variety of barriers frustrate the growing demand for secondary education.

- **Education for All.** The education for all focus is likely to divert any additional government resources, and perhaps even some resources currently going to other levels, into primary schooling.

- **Cost per student.** Government expenditure per student in general secondary school is on average 3.5 times more than per student expenditure for primary school (UNESCO, 1992).

- **Cost per school.** The cost of building and equipping a secondary school is significantly more than the cost of building and equipping a primary school.

- **Equity.** Private secondary schools may alleviate the demand for secondary schooling among the more wealthy, but do nothing for poorer, newly graduating students.

Some Observations on Solutions

It is not difficult to envision theoretical solutions which do not include building and staffing traditional secondary schools. One solution might involve determining the financial resources available in Country X for secondary education and utilizing these in a creative and constructive way to provide distance education programs including: a national curriculum, self-instructional materials covering the curriculum, some face-to-face teaching and other support for students studying the materials, and an independent assessment system which certifies successful students. This might be organized by a national learning center which would provide training and support for the people providing the teaching and other support and assistance to students to become independent learners. Those students' parents who did not opt for this system could establish private schools.

UNESCO/Dominique Roger

Traditional secondary schools may not be able to keep up with the demands for secondary education in the future.

It is clear that this solution would not be approved by many. Government secondary schools already exist and, even in countries like Tanzania or Malawi where less than 10% of the age range participates in these schools, the solution is not seen to lie in alternative modes of provision. Rather, the solution is seen in the provision of the same despite the relative expense. The inability of countries or outside agencies to "cut the cloth according to the measure" is only equalled by the inability of many citizens to see that, where resources are constrained, there is a direct relationship between the per-person cost of service provided and the number of people who can receive that service.

And there would be other objectors. Educators would point to the need to provide support for the many who would not be independent learners in the short term. Parents would not be happy to have teenage children not directly supervised. University faculty would be concerned about knowledge of scientific concepts. Teachers' Unions might not welcome the changing role of the teacher and the increased student-teacher ratio.

There are other less radical alternatives. For example, the expansion of secondary education provision can utilize some of the above techniques to provide secondary education for those who are not able to get a place in those traditional secondary schools currently in operation. (The two systems would operate in tandem; all provision for increasing numbers is through the alternative

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system.) A small number of countries have tried this (Malawi, South Africa, Zambia, Zimbabwe, Mexico) but the results have almost invariably been disappointing. These initiatives do not have what has been called "parity of esteem" with traditional secondary schools. They are considered a second-best, second-rate alternative to the schools and most students and parents if given the choice between the alternative and the school would choose the school. The choice is not surprising given the peer pressure, the better results, the parental expectations and allocation of resources.

Multi-Channel Solutions: Combining Strengths of Traditional and Distance Education

Any solution which provides secondary education for all needs to capitalize on the economic strengths and flexibility of provision of distance education while attempting to retain the status of the traditional secondary schools. The following are likely to be features of any successful model:

- Students attend daily in buildings which are simply and basically equipped for learning;
- Trained adults assist students to learn;
- High-quality attractive self-instructional materials are available for each student;
- Regular monitoring and assessment of student achievement is provided by a national agency / ministry; and
- *All students* spend some of their educational time in the system.

Clearly, problems can be expected. These might include low-expectation levels of pupils and teachers, higher dropout rates, materials supply problems and lower achievement levels than might be expected under the traditional secondary school model. However, if all students were in the system then the thrust would be to improve the system and not to dismiss it entirely.

How Would It Work?

It is possible to imagine two extreme examples of this model. In the first, the emphasis is on the learning materials. The trained adults are not secondary school teachers and they do not teach. They assist the students to work through the instructional materials. The buildings are basic and the main expenditure is on the instructional materials. Students are assisted to work through the materials and given remedial assistance when needed. An outside learning agency monitors quality and provides support.

The second model is much more like the traditional secondary school and the emphasis is on the teacher as instructional leader and on the school as monitor of quality and instructional progress. The instructional materials are used by trained (and retrained) secondary school teachers to supplement the instruction that they provide and to help them to reach many more students than they normally do. (Another alternative is to have the good math and science teachers in short supply reach many more students while the teachers in other subjects handle traditional classes.) The building and facilities are in use for most of the day and the evening and look like traditional secondary schools.

Given the current scarcity of places and the anticipated increased pressures on secondary schools, it is time to look at new strategies for integrating what we know about traditional and distance learning to reach those students with the desire and ability to continue education beyond primary school.

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Multi-Channel Learning in Focus: Project No-Drops and a Learning System for All

High student dropout rates continue to waste both educational resources and student potential all over the world. In the Philippines, however, Project No Drops is developing an innovative no dropout learning system which integrates formal, nonformal, and informal educational systems, and multiple teaching and learning strategies in a multi-channel approach. One educational system with multiple delivery systems and learning opportunities, this approach aims to provide access to quality basic education and to improve the internal efficiency of primary education to respond to the needs of students.

Funded by the International Development Research Centre of Canada and Unesco, Project No Drops is a three year research and development project implemented by SEAMEO INNOTECH. In the first phase of the project, No Drops is developing and field testing the Learning System for Education for All (LSEFA) in the Philippines to determine if integrating formal education, forms of nonformal education and distance education, and recent research findings about teaching and support strategies can make a difference. During the second phase, Project No Drops will be expanded to two other Southeast Asian countries.

Why Do Students Drop Out?

The reasons for school dropout are diverse and individual. One primary reason is lack of sufficient interesting, relevant and challenging experiences to stay in school. In one study conducted in the Philippines, teacher behaviors which were identified to contribute to student dropout were termed "hostilities in the classroom." The list of hostilities included the teacher's unresponsiveness to the varying needs of the learners, the failure to give encouraging feedback or progress reports, and the lack of teaching skill or motivational teaching strategies.

Other children drop out because of distance to school, responsibilities at home, or lack of support from others. Reasons for short term dropout may include illness, nomadic lifestyle, calamity, or lack of economic resources, among many. When these children drop out, the likelihood of their reentering formal schools and experience success after their absence is low. Subsequently, students who drop out even temporarily experience great difficulties catching up.

If children's experience in school was interesting, rewarding, and responsive and forgiving of their outside needs, fewer students would drop out. In Project No Drops, the quality of formal education, nonformal education, and informal education is strengthened as they are linked together in a consistent and new learning system. Knitting these multiple channels of learning together with innovative practice is seen as a viable way to eliminate dropping out and to improve the quality of learning outcomes.

Main features of Project No-Drops: The Diagnosis and the Cure

There are two distinct components of the new learning system—the diagnosis and the cure. The diagnosis involves identifying children at risk of dropping out at an early

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Feeding programs are also integrated into the the School-based Student Learning Support Services of Project No-Drops.

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Tutoring by parents and other community members is part of the Community-based Student Learning Support Services of Project No-Drops.

stage and determining whether they are achieving according to set standards. Research about these children is then used to explore the types of remedies which would keep them in an educational program longer and encourage them to learn and improve achievement levels learning alternatives.

The cure is LSEFA. The multichannel Learning System for Education for All (LSEFA) offers formal, nonformal and informal education through provide various delivery system for children who cannot report to school regularly, or are forced to leave school before completing grade six.

Reinforcing Formal Education

The project believes that the formal primary school is still the main vehicle for producing functionally literate citizens. If the quality of formal education is high, attractive, and beneficial to all children, fewer children will drop out and achievement scores will increase.

The main thrust of formal primary education in the new learning system is greater effectiveness achieved by introducing strategies which will make the learners more actively involved in their learning.

Expanding and Reinvigorating NFE

Children who cannot keep up with school because of difficulties which the school cannot overcome, such as prolonged illness, distance from school, calamity, etc., should not necessarily leave school. An alternative learning program will help them to continue until they can return to school. If they are forced to stay out of school, the alternative delivery system can sustain them until they acquire functional literacy and are appropriately certified in basic education.

The curriculum for this NFE program is comparable to that of the formal school and will include materials tested in other projects. These materials will also be available in the formal school for use as self-instructional remedial and enrichment materials.

Broadening and Strengthening IFE

Informal education consists of planned informal learning opportunities for meeting basic learning needs for survival, development and life. The new learning system provides opportunities for the development of these skills and attitudes in the schools and community and supports the education available in the formal and nonformal areas.

The key to learning in informal education is maximum exposure to good models and active participation of the learner. Opportunities may include activities which parents and their children may get involved in together, such as helping to make the school environment more conducive to learning, assisting the teachers in the school feeding program, keeping the school premises neat and clean, or managing school extra-curricular activities, such as literacy contests, science clubs and camps.

The project provides opportunities for the parents of children enrolled in school to maximize their contribution by organizing various school committees and encouraging parents to work with the children.

The teacher plays an important role in the informal education of the learners. He or she must take particular care to demonstrate positive behavior and to utilize multi-media, eg., cassette, TV, etc., and other forms of communication, such as plays dramas, and other novel forms that have potential for educating learners informally.

Implementing the Research of Others

Project No Drops integrates more than

different forms of educational media. It also borrows materials, strategies and practices found effective in other educational projects. For example, Project No Drops has adopted self-instructional technology, peer teaching strategies and learning modules from SEAMEO INNOTECH's Instruction Managed by Parents, Community and Teachers (IMPACT) project. From the UNESCO-funded project, Parent Learning Support System (PLSS), Project No Drops has discovered strategies for increasing pupil achievement through parent and community support systems. Finally, Project No Drops has adopted schemes developed in the Unesco-funded Student Learning While Absent from School (SLAC) project, which demonstrated that rural children who were absent from formal classes for long periods of time due to needs on the farm can be saved from dropping out through distance-type catch up learning activities and materials.

In Sum, How Does It Work?

As early as the first weeks of school, the teacher uses an instrument developed by Project No Drops to identify children at risk of dropping out.

Since research has indicated that children who have reading difficulties and who are deficient in mathematical skills are more likely to drop out, the formal and nonformal curriculum is fortified in these subject areas.

The teacher and supervisor-reorientation program provides training in approaches to effective teaching and learning, such as integrated learning, cooperative learning and interactive learning. (eg., guidelines provided for effective teaching include developing thinking and problem solving skills, maximizing the learners' active involvement in their own learning, providing for interactive learning and giving appropriate feedback on pupils' responses.)

Through research done in other projects, No Drops adopts proven resources and teaching strategies to supplement and complement learning in all of its components.

Through research on other projects, Project No Drops will implement community and parent support systems for the students.

Teachers and principals are taught about educational alternatives within the multi-channel approach and what to recommend when a potential drop out problem is identified.

For children at risk of dropping out, or who drop out because of nonschool factors, such as ill health, distance from school, poverty, armed conflict, nomadic habits, and ethnicity, immediate remedies may be employed, such as distance education strategies, school feeding, and income-generating activities for parents.

Children who will be absent from school for

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The LSEFA methodology includes:

- a learning continuum for dropouts enrolled in a nonformal education program;
- an instrument for identifying potential primary school dropouts;
- learning materials that develop thinking and functional literacy skills as well as the ability to learn how to learn;
- training packages including the role of parents in their children's education, how to tutor children at home, how to monitor and supervise children's learning, livelihood skills and income generating projects, and health and environmental sanitation and protection;
- a set of evaluation materials and prototype training package for adopting or adapting the no dropout learning system to other school sites; and
- choices among formal, nonformal and informal channels of education.

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a long period of time or permanently are shifted to an alternative learning system whose curriculum is based on the essential aspects of the formal school curriculum. The parallel nonformal curriculum is intentionally created to make their education comparable to children who remain in the formal school.

Children who use the designated alternative learning systems have access to the Philippine educational placement test (PEPT),a system for accreditation which provides a basis for re-entry to the formal school or a certification that they have acquired basic education or functional literacy.

With the development of the LSEFA and parallel curricula, children who drop out of the stream may re-enter school when circumstances allow. If they cannot return to school, they may continue learning through the alternative learning system and be certified in basic education or functional literacy.

SEAMEO INNOTECH is one of twelve Southeast Asian Ministers of Education Organization (SEAMEO) regional centers, three of which are based in the Philippines. SEAMEO member countries consist of the six ASEAN countries (Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand) and the three Indochinese countries (Cambodia, Laos and Vietnam).The Regional Center for Educational Innovation and Technology (INNOTECH) pursues the goals of SEAMEO by fostering regional cooperation among Southeast Asian countries through education for human resource development.

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Kenya's Rural Press Project:

In many African countries, not only is the press confined to the cities, its contents tend to focus only on an urban, sophisticated and educated population. But over 70% of the African population resides in the rural areas, and a considerable proportion of those remain largely illiterate. As literacy advances and the desire to communicate through reading and writing increases, the press can assume an ever greater role — provided it can be brought closer to rural communities.

Kenya is one of the few countries in Africa currently experimenting with a rural press project. After placing emphasis on the development of a communication infrastructure, the Kenyan Government created District Development Committees to identify development projects and prioritize them. The result was not surprising. Local newspaper projects were identified as priorities for bringing rural areas into the communication mainstream and inspiring and reinforcing literacy.

The History of Kenya's Rural Press

In 1974, the Kenya Government approached Unesco for assistance to establish the first rural newspapers as part of a pilot project to determine the feasibility of establishing rural newspapers throughout the country. In 1975, the first rural paper KISOMO was established in Murange district of the Central Province. The paper was published in Kikuyu language, one of the dominant languages in Kenya. A popular paper, KISOMO immediately enjoyed wide circulation. Today, it continues to be circulated to over 10,000 readers.

Following the success of KISOMO, the Kenya Government decided to expand rural newspapers throughout the country. Under an agreement signed with Unesco and the Federal Republic of Germany, the Kenya Government established the Kenya Rural Press Extension Project.

The Kenya Rural Press Extension project was established in three phases. In the first phase three rural newspapers were established: "Sauti Ya Kericho", based at Kericho town and serving readers in the Kericho district, "Sauti Ya Gusii", located in Kisii town for readers in the Kisii district, and "Sauti Ya Pwani" based at Mariakani in Kwale district and covering the entire Coastal province.

During the second phase, four additional rural newspapers were established: Nyota Ya Mashariki, based at Machakos and serving Lotui and Machakos districts; NYOTA YA MAGHARIBI, based at Vihiga and serving the entire Western Province; JICHO, based at Siaya and serving Siaya, South Nyanza and Kisumu districts; and NURU based at Isiolo and serving Isiolo, Meru, Marsabit and Emdu districts.

Now in the third phase, newspapers are expected to proliferate around Kenya: NYOTA YA KATI located at Muranga for Central province; NGAU located at Naivasha to serve Nakuru, Narok and Kajiado; HABARI based at Garissa to cover the North Eastern Province; and MWANGAZA, a zonal paper which went into circulation in May 1988 and caters to readers in Turkana, West Pokot, Samburu, Elgeyo Mara Kwet, Baringo, Vasin Gishu, Trans Nzoia and Nandi districts.

Unlike the newspapers established under Phase I and II, the papers in PHASE III use a sophisticated and rugged German printing machine called the Heidelberg Press.

RESULTS OF THE 1993 DCR READER SURVEY

Thank you to all who responded to the 1993 DCR Readers' Survey. We appreciate the time everyone took to complete the survey. The results are an important tool in our long-range planning. Because we received such a high volume of responses, we included the free resource guide as an insert to this issue rather than mail it separately.

Following are preliminary findings of the responses based on almost half of the questionnaires received to date

Quantity of coverage of the DCR on certain topics

In response to the question asking if the quantity of coverage on certain topics was sufficient, we received a range of replies.

More than half (60%) of the respondents feel that there are not enough contributions from authors from developing countries. Readers, please help to alert us of interesting projects and perspectives and submit article proposals!

Regarding the questions on adequacy of coverage of high-technology communication approaches (radio, satellite) and low-technology communication (interpersonal, folk media), the response was that there is too much coverage of high technology communication (61%), and not enough coverage of low technology communication approaches (77%).

Readers felt that the DCR presents sufficient amount of space to coverage of community projects (70%), and in providing practical information such as case studies, "how-to" articles, and resources (60%).

How the DCR is used

The results in this section are consistent with the results of the previous survey.

The DCR is used by our readers in the areas of acquiring ideas on the application of communication technology (75%) and monitoring trends and developments in the field (70%). A moderate number use the DCR to gain tools for project design, implementation or evaluation (63%), and ordering resources (55%).

Smaller numbers (12%) use the DCR to prepare for professional meetings and for teaching or research.

These results again suggest the need for the DCR to keep abreast of new and emerging trends, and continue its traditional emphasis on communication applications in the field, as well as continue to provide practical, useable information to our readers.

Spanish and French editions

Selected issues of the DCR are available in French and Spanish. Only 10% of the respondents were aware of its availability in French and 17% were aware of its availability in Spanish. We need to make sure this information is available and perhaps periodically provide a brief description of our documents available in French and Spanish.

Access to electronic communications

In our efforts to not only keep abreast of available communications technologies, but to actually use them and find out what our readers are using, we asked about readers' familiarity with and access to electronic mail (e-mail). We found that 90% do not have access to e-mail, although 55% are familiar with the technology. About a third would like more information about this form of communication.

NEWSLETTERS AVAILABLE FREE TO SUBSCRIBERS IN DEVELOPING COUNTRIES

AIDS Action Action contre le SIDA
AHRTAG
1 London Bridge St
London SE1 9SG. UNITED KINGDOM

AIDS Health Promotion Exchange (Quarterly)
Global Programme on AIDS:WHO
Distribution & Sales
1211 Geneva 27. SWITZERLAND

AIDS Information Exchange (Quarterly)
The U.S. Conference of Mayors
1620 Eye Street, NW
Washington, DC 20006. USA

AIDS Technical Bulletin (Monthly)
Bureau of Hygiene & Tropical Diseases
Keppel Street
London WC1E 7HT. ENGLAND

AIDS Watch (Quarterly)
Intern'l Planned Parenthood Fed. (IPPF)
IPPF Distribution Unit
PO Box 759
London NW1 4LQ. UNITED KINGDOM

African Farmer (Quarterly)
The Hunger Project
One Madison Avenue
New York, NY 10010. USA

Agricultural Information Development Bulletin (Quarterly)
Agric. & Rural Dev. Division. ESCAP
United Nations Building
Rajadamnern Nok Avenue
Bangkok 10200 THAILAND

CIAT International (3 x year)
Intern'l Center for Tropical Agriculture
Communications Unit
Apartado Aereo 6713
Cali. COLOMBIA

CIKARD News (Quarterly)
Center for Indigenous Knowledge for Agriculture & Rural Development
Technology & Social Change Program
Iowa State University. 318 Curtiss Hall
Ames, Iowa 50011. USA

CIRCIT
Centre for International Research on Communication & Inf. Technology
Riverside Quay
4 Byrne Street
South Melbourne. 3205. AUSTRALIA

CODEL News (Bimonthly)
Coordination in Development, Inc.
475 Riverside Drive. Room 1842
New York, NY 10115. USA

Children in Focus (Quarterly)
UNICEF Caribbean Area Office Rep.
Shirley House
Hastings
Christ Church. BARBADOS

Choices-The Human Development Magazine (Quarterly)
UNDP:Division of Public Affairs
One UN Plaza
New York, NY 10017. USA

Cooperation South (3 x year)
UNDP
Division of Publications
One UN Plaza
New York, NY 10017. USA

The Courier (Bimonthly)
Dieter Frisch
200 Rue de la Loi
1049 Brussels. BELGIUM

DEEP - FAO
Dev. Education Exchange Papers
Freedom from Hunger Campaign/Action for Development
Via Terme di Caracalla
00100 Rome. ITALY

Developing Countries Farm Radio Network (DCFRN)
595 Bay Street
9th Floor
Toronto, Ontario M5G 2L3. CANADA

Dialogue on Diarrhoea (Quarterly)
AHRTAG
1 London Bridge Street
London SE1 9SG
UNITED KINGDOM

ECHO (Quarterly)
Association of African Women for Research and Development (AAWORD)
AFARD
BP 3304
Dakar. SENEGAL

Euroradio
Federation Europeene des Radios Lisres (FERL)
BP 42
04300 Forcalquier. FRANCE

Footsteps (Quarterly)
Tear Fund:Christian Concern in a World of Need
100 Church Road
Teddington TW11 8QE.
UNITED KINGDOM

The Forum
For Advancing Basic Edu. & Literacy
Harvard Institute for Intern'l Dev.
One Eliot Street
Cambridge, MA 02138. USA

IDRC Reports (Quarterly)
Intern'l Deve. Research Centre (IDRC)
Communications Division
PO Box 8500
Ottawa, CANADA K1G 3H9

IIEP Newsletter (Quarterly)
International Institute for Educational Planning
7-9 Rue Eugene-Delacroix
75116 Paris. FRANCE

IPDC Newsletter (Bi-monthly)
International Programme for the Development of Communication
IPDC Secretariat
1 Rue Miollis
75015 Paris. FRANCE

IUCN Bulletin (Quarterly)
International Union for Conservation of Nature & Natural Resources
Avenue du Mont-Blanc
CH-1196 Gland. SWITZERLAND

Interpaks Interchange (Biennial)
Office of International Agriculture
University of Illinois at
Urbana-Champaign
Urbana, IL 61801. USA

The Journal of Development Communication (Biennial)
(AIDCOM)
9th Floor, APDC Bldg.
Persiaran Duta
50480 Kuala Lumpur, MALAYSIA
Free to nonprofit organizations in selected developing countries

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Mothers and Children (Tri-annual)
Bulletin on Infant Feeding & Maternal Nutrition
Clearinghouse, American Public Health Assoc.
1015 15th Street, NW
Washington, DC 20005 USA

Moving Pictures Bulletin (Quarterly)
Television Trust for the Environment (TVE)
46 Charlotte Street
London W1P 1LX,
UNITED KINGDOM

Network (Quarterly)
Family Health International
PO Box 13950
Research Triangle Park
North Carolina 22709, USA

Our Planet (Bi-monthly)
United Nations Environment Programme (UNEP)
PO Box 30552
Nairobi, KENYA

OUTREACH (Quarterly)
Dr. James Connor, OUTREACH Director
Teaching & Learning Center NYU
200 East Building
239 Greene Street
New York, NY 10003, USA

People & the Planet (Quarterly)
International Planned Parenthood Federation
Regent's College
Inner Circle, Regent's Park
London NW1 4NS, UNITED KINGDOM

Population Reports (Quarterly)
Population Information Program, Center for
Communication Programs
Johns Hopkins University
527 St. Paul Place
Baltimore, MD 21201, USA

Safe Motherhood (Quarterly)
Division of Family Health
World Health Organization
1211 Geneva 27, SWITZERLAND

Soundings (Biennial)
An idea exchange in rural development
communications
World Neighbors
4127 N.W. 122 Street
Oklahoma City, OK 73120 , USA

Source (Biennial)
UNDP-World Bank
Water and Sanitation Program
One UN Plaza
New York, NY 10017, USA

The Tribune
A Women and Development Quarterly
International Women's Tribune Centre
777 United Nations Plaza
New York, NY 10017, USA

UNESCO Adult Education (Quarterly)
UNESCO Secretariat
Adult Education Section,
Division of Primary Education
7, Place de Fontenoy
75700 Paris, FRANCE

UNESCO Sources
(Monthly)
7 Place de Fontenoy
75352 Paris 07 SP, FRANCE

World Food Programme Journal (Quarterly)
Via Cristoforo Colombo, 426
00145 Rome, ITALY

World of Work (5 x year)
ILO - Bureau of Public Information
1828 L Street, NW Ste. 801
Washington, DC 20036, USA

World Neighbors in Action (Quarterly)
A Newsletter for Project Personnel
4127 NW 122 Street
Oklahoma City, OK 73120-8869, USA

Bringing the Local Reality into Focus

The rural newspapers are printed every two weeks and range in circulation from 2000 to 8000 copies. MWANGAZA, which was established recently, has the highest circulation rate of 8,000 copies.

UNESCO/Chamoli

Paper boys are a frequent sight in the cities of Africa. Now in Kenya, rural newspapers are being sold by the thousands.

A People's Forum

The rural press is a people's forum. It is meant to let people read more about themselves and the development activities surrounding them. With its emphasis on local content and down-to-earth nature, rural Kenyan are discovering a powerful new medium for expression and communication.

The editor of MWANGAZA, Mr. John Chemaringo, attributes the high sales of his newspaper to relevant and interesting feature articles and local stories for the eight districts which the paper covers. Teachers, extension workers and information officers all contribute to the newspaper and highlight development projects and social/cultural activities from the perspective of "Wananchi", ie., rural dwellers, as opposed to government elites and functionaries. News, feature articles and photographs of the local people and activities such as construction work, tree planting ploughing etc, bring the stories home.

Readers in Busia, a town situated between the Ugandan and Kenyan border, expressed delight at having access to information which contains real events about their neighbors and their conditions. A successful small scale farmer, Mr. Watula, has proudly appeared twice in his local paper, the NYOTA MAGHARIBI — both articles about the success of his farming practices.

Sharing Local and National News

The rural papers tend to give priority to agriculture and livestock, local news, social issues, education and business, and carry few stories on international news. Yet, local and national newspapers do share and exchange news items. For example, some of the rural newspapers publish and provide stories to the Kenya News Agency (KNA).

In other cases, Government development activities which ordinarily may not be given prominence in the national dailies, are published in the rural newspaper. Editors have found that while they may be vital to urban dwellers, some Government stories are interesting to district dwellers. These two-way processes introduce a communication between the people and development agencies.

Creating Dialogue and Inspiring Thought

The creation of rural newspapers does more than reinforce literacy. As national and local languages receive increasing recognition, the appearance of rural papers in these language symbolizes significant progress towards national integration.

Rural newspapers also inspire conversation about issues in people's lives. In a survey conducted to evaluate the rural press, Dr. Joseph Mbindyo of the School of Journalism, University of Nairobi has revealed that the rural press in Kenya is popular because readers can access locally relevant information at an affordable cost. Moreover, the messages carried by the rural newspapers are retransmitted by word of mouth. In fact, 77.6% of the readership discussed the contents of the papers with others.

In an effort to gain financial independence after Unesco-funding tapers off, the papers are discovering a large market of advertisers in the local government, local classified and local business community large scale firms, development agencies, NGOs and the District Development Committees to support the newspapers. While the surveys show that the newspapers are under-utilized by advertisers or other paying organizations, the Kenya Rural Press Extension Project has gained a popularity and a purpose it wishes to maintain.

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Multi-Channel Learning in Practice: Case Studies from India, Costa Rica, South Africa

Theories of education come and theories of education go. At what point do we decide that a particular style of teaching and learning or approach to educational reform is actually more effective than those of last year or worthy of extra attention? And which ones are new really and not simply disguised in new and untattered clothing?

For those wary of pop learning theories and learning gadgets, multi-channel learning approaches are not shiny and new. They do not pretend to be the latest coined theory of how education for all can be reached, but instead they are an *integration* of educational processes that have worked and can mutually reinforce each other to reach similar goals. While not new, they are the result of collaboration on a new level.

Busch

These South African children are following audio directions given over cassette and by the teacher. Written information is also given on the chalkboard and in workbooks.

Researchers, theorists and practitioners from fields closely related but often considered distinct and mutually exclusive are now sharing more of their successes. The type of intellectual and disciplinary turfdom that has kept fields like communication, education reform and distance education from mutually supporting each others' approaches is at last drying up. It is time to revisit what has been learned and come up with comprehensive approaches to overcome educational constraints— approaches which might, for example, borrow a delivery system common in one field, academic resources found in another and methods of communication used to reach an audience isolated by distance or social constraints in a third. The better one system or channel reinforces another, the more effective is the whole.

Young or old, urban or rural, sedentary or nomadic, constraints to getting an education can be enormous. If a student lives in a remote region and speaks a native tongue not used in the formal system, the constraints increase. If educational or information channels are not available to one's gender, economic level, lifestyle, or age (the list goes on), the situation worsens still. If there is an accessible educational channel or materials, but it is not well-monitored, well-delivered or up to par pedagogically, it can fall short of offering needed educational gains or opportunities.

By integrating delivery systems and approaches to communication and learning, the types of opportunities that multi-channel approaches can offer are expanded.

Without necessarily changing the curriculum, a multi-channel approach can enhance or offer new learning materials through delivery systems such as radio, television, audio cassette, or post to teachers, students or other community members.

Multi-channel approaches can create new systems which borrow effective educational principles but deliver them in a culturally viable framework, such as self-instructional resource centers, educational radio programs for women they can listen to while they do household work, or cassettes and texts that can travel with families as they migrate.

Multi-channel approaches can help to link existing formal and nonformal systems so that they better support each other, such as parallel accreditation, parallel curricula and materials, or parallel teacher training programs.

Multi-channel approaches can use theory and resources used in one field to create more effective materials and teaching strategies in another, such as peer group learning strategies and motivational techniques in formal school settings.

Multi-channel approaches can often reach hard-to-reach audiences more effectively as they offer new ways to cut across cultural or environmental barriers. Examples include programs or materials that are self-paced and can be used during unusual hours, programs or materials that can reach into the community and therefore be perceived as safer for women or more accessible to individuals where travelling is difficult, or programs that reach populations who need to take time off of school for short periods of time due to work schedules or illness, and who would, in more traditional programs, fall behind and drop out.

and Bolivia

It is easier to understand the application and diversity of multi-channel learning through real examples. Project No Drops, described on page 6 by Minda C. Sutaria, is a clear example of a multi-channel approach which links the formal education system with distance education strategies. Paud Murphy outlines another approach in the possibility of open secondary schools beginning on page 1. The case studies below will provide more detail about how multi-channel theory can be played out in practice.

The India National Open School

The India National Open School (NOS) is a distant education system which reaches more than 250,000, over-fourteen students with courses in basic literacy and numeracy, practical job-related skills and vocational education in various parts of India. Distributed primarily through the mail system, the NOS uses integrated course materials including text, audiocassette and video to teach and reinforce its lessons. Study centers are available to use the self-instructional materials.

Materials are provided in English and Hindi and tutors and support systems are available regionally for the students. The NOS is also looking into using radio to assist in the delivery of educational programs and e-mail to assist in the integration of administrative functions.

The whole program is an interesting example of a multi-channel approach, yet two qualities make it stand out: its priority and success in reaching a female audience over the age of fourteen, and the linkages of its accreditation to the formal education system.

- ***Equity.*** NOS acknowledges that some populations are more likely to be excluded from formal schools than others, and caters to women and handicapped individuals. As an incentive, for example, NOS offers lower fees to female students. With that advantage and the option of working on self-instructional materials when it is most convenient, more than 60% of participantsare women or handicapped students.
- ***Accreditation.*** NOS provides more than just a certificate of completion for distance courses. Graduates receive the same accreditation from the open school that they would have received at formal school. This allows students with special needs or time and distance constraints to achieve a respectable degree rather than one thought to be second best.
- ***Multi-media self-instructional materials.*** NOS's main thrust is on self-learning print materials, but other media are also available. Materials are designed by subject expertsand graphics designers to make reading easy.
- ***Linkages with formal schools.*** NOS has developed a network with more than 300 formal institutions, mostly accredited schools, which provide student support centers and act as study centers. NOS in turn is also making the audio and video resources available to formal schools.

Fundación Omar Dengo

In Costa Rican primary schools, children are learning math with help from a computer program called Logo.

Computers in Costa Rican schools

Not every school can provide computers for its students to use. But in Costa Rica Fundación Omar Dengo is experimenting with the use of computers in rural schools to teach fundamental math skills and is learning about learning strategies in the process. The program the children learn uses simple mathematical formulas to draw pictures. The children are

case studies, cont'd from page 13

Bosch

In Bolivia, women are learning how to stimulate young children in games and activities through interactive audio-cassettes, posters and training in child development.

stimulated by the visual application of their calculations and consequently learn the math as well as they overcome fear of the technology. In the process of learning how to facilitate the computer labs, rural teacher are learning these skills as well.

Two qualities of the project are:

- ***Gender equity.*** They are finding that, like the India Open School, when the traditional barriers are broken down through new technologies or channels of instruction, more girls are motivated and sustain involvement longer. Computer hardware is not gender sensitive.
- ***Self-instructional materials.*** The program is also to a large degree self-instructional and amenable to work in groups. Therefore, the teacher can pair off the children, who then confer on how to solve different problems, and walk around and assist pairs as needed. Self-instructional materials are allowing the teachers to provide more individualized instruction and reach more students.

Radio for Teacher Training in South Africa

The Open Learning Systems Education Trust (OLSET) is experimenting with interactive multi-media approaches to teacher training in poor underserved areas in South Africa. In the process of airing pilot radio programs in math and English as a second language to children in formal schools, OLSET discovered that the teachers themselves needed support. Teachers needed training on strategies which promote learning through interaction between teacher and student rather than just student and radio program.

Now a model is being developed which combines video-based classroom workshops and inservice audio-cassette or radio programs with print packages. The teachers can see, hear and interact with concrete examples of learning strategies and then adapt them to their own styles and pace. Support materials such as wallcharts, flashcards and newspaper supplements are planned to reinforce the teacher training. Teacher focus groups are also planned.

While none of these inputs is unusual, it is more common to see such an integrated approach in a communication project than in an education project. And in comparison to more traditional teacher training, no one training method is proposed in isolation. For longevity and to increase cost-effectiveness, various teacher training channels will be used at once and will then become available for use long after the resources are created. Unique qualities of this project include:

- ***Multi-media delivery system.*** The project plans to set up learning situations through various reinforcing delivery systems.

Bolivia Early Child Development

Integrated early child development programs are proliferating around urban areas in Bolivia, thanks to a large Government project and a loan from the World Bank. Keeping the "madres educadoras," as the caregivers are referred to within the project, aware of activities and approaches which stimulate children in all areas of development, and ways they can manage a large home-based program with young children, is quite a large task. To help out, a small pilot project implemented by Education Development Center and funded by A.I.D. is developing an audio-cassette / poster series which models and guides simple interactive activities, and then suggests ways the mother educator can create similar activities on her own.

Targeted to the adult and child at once, the approach uses the following multi-channel qualities:

- ***Multi-media approach.*** It uses audio, visuals and print together.
- ***New learning strategies.*** It incorporates diverse learning strategies and management techniques in a nonformal setting.
- ***New audiences.*** It targets hard to reach audiences—women providing important early childcare in the homes, and children who are just beginning to develop self-esteem and early preschool skills.

Conclusions

Multi-channel approaches are becoming more prevalent as researchers and implementors see the value of integrating and reinforcing learning channels. When the research data come in, we will see how often collaboration across fields and experiences—while not always easy— pays off for the learner.

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Internetworking: Understanding E-Mail

In the 1980s, the emergence of personal computers (PCs) ushered in a new era of human productivity and interactivity. In the 1990s, the popularity, ease and low cost of electronic mail, or "e-mail", are transforming development communication.

If you have never seen e-mail, imagine software on a PC which prompts you to fill in a couple of blanks at the top of the screen for the recipient's name and e-mail "address," and then allows you to type your message in the screen below in the same manner as a word processor. The main difference occurs after you save the message. Instead of printing a message on your printer and faxing or mailing it, you can instead just send it to the recipient's hard disk electronically using regular telephone lines and a "modem," at the mere punch of a button. The recipient can read the message on their screen almost immediately, using their e-mail software.

To send electronic mail, you need a PC, e-mail software, a device called a modem, and somewhere for your modem to call.

An "external modem" is a device the size of a small book which interfaces between your telephone line and your PC. It has a regular telephone jack where you plug in a phone cord, and has a cable which you plug into the back of your PC. An external modem also has a power plug. You can also install an "internal modem" inside your PC, whereby all you have is a phone jack on the back of your PC and no other cables.

A user does not need to know how the modem actually works. Once the modem is plugged in, all a user needs is some user friendly communications software which will operate the modem for you "behind the scenes". Different software packages are discussed below.

Once your modem and software are running, you need a host system to call. There are two kinds of host system: *interactive* and *store and forward*.

In this system, you prepare e-mail messages using your message editor while the modem is turned off. After you are finished and save your messages, you turn on your modem and then punch the software command to deliver your mail. Then you can walk away while your PC automatically delivers your messages through the phone lines to your hub or another user's system, and picks up any pending messages for you. Usually, you can attach files to messages, e.g., a Lotus spreadsheet file, a WordPerfect document, or any other kind of file.

The other type of system, interactive, requires that you call and interact "live" with a host system. You tell your software to dial a number, it connects with the remote modem, and the remote site sends menus to your screen. You send e-mail by typing the messages on-line, i.e., while connected by modem.

Store and forward e-mail is less expensive on your phone bill if one has to call long distance, and is more user friendly. You use the same message editor for all networks, and the message editor is like a word processor, which is more user-friendly than the limited on-line message editors of interactive systems.

CompuServe, Prodigy, and America On-Line are examples of commercial interactive systems. They typically charge a monthly fee plus hourly usage. Commercial store and forward e-mail systems include MCI Mail, SprintMail, EasyLink (AT&T), and Dialcom (British Telecom). They typically charge by the number and size of your messages.

With virtually all commercial systems, you must arrange an account in advance of using their system. However, there are many noncommercial systems which will allow limited use without setting up an account in advance.

Noncommercial store and forward NETWORKS include Fidonet (30,000 nodes worldwide run on PCs) and Internet e-mail systems. A user becomes a node on a store and forward network by making arrangements with any site already connected on the network, and obtaining compatible software. The user uses that one "uplink" site to relay all mail to/from the user. PerManNet also offers this service for the Internet, Fidonet, FedNet, and a development-related network called

continued on p 16

Bulletin Boards

Thousands upon thousands of noncommercial interactive Bulletin Board Systems (BBS's) exist around the world, usually run on a PC in someone's home or office. The Clearinghouse on Development Communication (CDC) has a section on the PerManNet BBS at (703) 715-9806 (modem). (This is a free service, and you can call using your modem without any prior arrangements.) The CDC BBS offers information such as upcoming conferences, new resources, and selected articles by development practitioners. Everyone has access, and anyone can contribute.

IntlDev.

The PerManNet BBS allows users to post messages to people anywhere in the world who have an Internet address. After the BBS user saves the message, it is automatically relayed to its destination via the Internet, an elaborate network most of which uses devices other than modems.

For example, a user can log into the PerManNet BBS and send and receive messages to/from any user(s) on MCI Mail, CompuServe, PeaceNet, BITNET, Fidonet, USAID Internet users, and any other user of any other Internet-linked network in the whole world. Users on the PerManNet BBS are automatically given their own unique Internet address when they log on. (For example, if you log on as Joe Smith, then your Internet address becomes joe.smith@permanet.org and you will be given any new mail upon your next login.)

The "Internet" is a worldwide cooperative network tied together by a vast decentralized assortment of communications devices. Most communication is not by modems but is by "hard wiring"—cables, satellite links, microwave relays, and regular phone lines. New sites are periodically added to an electronic "map" by circulation of update files among major relay sites. The Internet is imperfect, but works more than 99% of the time in relaying messages to their proper destination.

Understanding HOW a message gets to its destination is not important to using e-mail. All senders needs to know is the recipient's Internet address and how to use their own software or host system.

Mainly used for store and forward mail, Internet can also be used for remote logins, accessible through the Internet communications system. This process is called "telnet". Universities usually offer telnet menus, and you can usually retrieve files from public directories on the university's computers for a small fee.

While one of e-mail greatest virtues is its low cost, sometimes it is difficult to find local Internet access in developing countries. Most users in developing countries use a store and forward system (e.g., Fidonet) to send and receive e-mail and files to/from Fidonet, private networks, and the Internet. (Fidonet is a member of the Internet.)

Development practitioners should keep in mind that most store and forward e-mail packages will communicate only with sites which use the same package. A typical example is cc:Mail by Lotus, which offers a basic package for a private network. All users on the network must purchase cc:Mail software. cc:Mail also sells "gateway modules" which you can add on, one per network, e.g., to link one's private network to a site on the Internet. However, before buying a package like cc:Mail, make sure they have a module for your future Internet uplink, and make sure you shop around for that uplink to make sure it offers the most appropriate combination of cost, features, and support.

One way to access e-mail in remote areas is through Fidonet software. Fidonet-compliant software is popular in developing countries, because it uses ordinary phone lines and the connect time is minimized. Fidonet-compliant software exists for running on any MS-DOS compatible PC's (XT, 286, 386, 486, P5) as well as the MacIntoshes, Unix, and other operating systems.

Indeed, Fidonet SOFTWARE has been used for hundreds (if not thousands) of private and public networks which are completely independent of the Fidonet NETWORK. Many projects operated by USAID use this software, e.g., Famine Early Warning Systems (FEWS), Southern Africa Famine Information and Resources Exchange (SAFIRE), and VITANET. In addition, Fidonet-compliant networks are used by the United Nations, the Red Cross, ex-YugoNet, EmergencyNet, the Association for Progressive Computing (APC), IntlDev, and many other global humanitarian and private networks.

Notably, most store and forward software allows one to attach files to messages. For example, you can attach a Lotus 123 spreadsheet file to a Fidonet message and send it to an associate on another continent, and they will find that file in their hard disk's inbound directory exactly as it exists on your hard disk.

In contrast to using Fidonet software, e-mail that is routed via the Internet will not accept files attached to messages. One must undergo a process of decoding. Thus, the Internet presents a technical complication if one wishes to route system files. It works, but it's more complicated than Fidonet software.

Besides e-mail, the most widely used resource on Fidonet networks and the Internet is "conference mail"—also called "Usenet newsgroups" or "mailing lists" on the Internet and "echomail" on Fidonet. Conference mail is public discussions on specific topics. Conferences occur for all kinds of disciplines and general discussions. When one "joins" a conference, one is requesting that the network forward to your mailbox a copy of all new messages posted by others in that conference. (They are usually sorted by your software so that you can jump from conference to conference in your mail reader.) Any message you post is automatically circulated to all other participants.

In conference mail, people from different places all over the world report and discuss various issues, ask others for help or leads to information and resources, and make professional contacts.Participants can read and write messages at their own convenience. Conference mail has sometimes been dubbed as a substitute for expensive in-person conferences; however, common experience is that it leads to

highly productive conferences and business networks.

News wires can be obtained in conference mail form for a fee. You just choose the news categories you wish to start receiving. While some of this news appears in the newspaper, much of it is passed over by the newspaper editors.

Finally, there are many ways to search for information (e.g., files, databases) besides using conferences. Some search operations can be performed by store and forward messages addressed to machines instead of people, with properly search criteria. However, sometimes one needs an agent who is properly connected to an interactive Internet node, such as a university.

Overall, e-mail is a diverse medium which can be used to accomplish many different kinds of things. E-mail is not only the fastest, least inexpensive and most convenient means of communication, but is becoming vital for keeping up in one's field.

Indeed, if you don't have an Internet e-mail address, then to enter and keep up in the information age, "you need to get connected!"

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Preserving Oral Traditions in Storybooks: Educating young people through heritage

Children learn more from stories than meets than eye. They learn to listen carefully to details and events, they learn to read and associate ideas with language, and they learn to appreciate the culture and morals in the plot. In Nairobi, Kenya, Jacaranda Designs is creating a series of illustrated storybooks which help children to do all these things — through legends that have been told orally in Kenya for generations.

Most of the educational storybooks around the world tell stories complete with pictures and descriptions of animals, houses and lifestyles imported from only a few of the world's regions. In an effort to keep these oral stories alive, Jacaranda Designs has brought together local artists and storytellers to create and publish beautiful storybooks in English and Swahili. Each storybook is written for a particular age group and has educational activities listed in the back. The Early Learning series is structured for beginning kindergarten learners. Other books are tailored to an older audience.

Recommended for children in Kenya and everywhere, these books are available through the following address: Jacaranda Designs, Ltd., P.O. Box 76691, Nairobi, Kenya.

In this beautifully-illustrated story, the Great Greedy Ogre eats everything in the village until finally, he blows up.

Resources

Multi-Media Kits

UNESCO, Communication Division, Attn: Gervasio Kaliwo, 1 Rue Miollis, 75015 Paris, France. fax: 331-4567 4234.

Created for group training or individual study, this development communication kit contains print, graphic, audiovisual and computer disc materials. It introduces basic theoretical underpinnings of development communication and elaborated case studies in action from around the world. It also contains a directory of agencies and institutions concerned with communication and a data base on computer disk for future reference.

Ryerson International Development Centre, Ryerson Polytechnical Institute, 350 Victoria Street, Toronto, Ontario, Canada M5B 2K3. tel: (416) 979-5026; fax: (416) 979-5352. Cost: US$150 for organizations in the North, US$100 for organizations in the developing world.

Using an interactive, learner-center approach, Broadcasting for Development covers topics such as theories of development broadcasting, skills for broadcasters, planning and production strategies and research and evaluation of broadcasting projects. The training package includes print notecards, a manual, five case study video programs, users' guides and notes for the video programs, a training syllabus and a training methods handbook.

Books and Audiovisuals

by Luis Felipe Ulloa, Editorial Guaymuras, P.O. Box 1843, Tegucigalpa, Honduras. tel: (504) 375433. Spanish. 91 pages. 1993.

This communication guide was written for writers and trainers who work for rural people but do not belong to that community themselves. It reviews styles of communication which promote maximum retention, interactive methods of training, how to simplify language for greatest impact and the use of illustrations to accompany text. In simple Spanish and filled with graphics, it practices what it preaches and is useful to a variety of readers.

by Heidi Noel Nairmen, Greenwood Publishing Group, 88 Post Road West, Box 5007, Westport, CT 06881 USA. tel: (203) 226-3571. 184 pages. 1993. Cost: $47.95.

Using examples from Mexico, the author discusses the theory, practice and evaluation involved in using soap operas for education and entertainment. Psychological theory is introduced alongside the process and results of formative and summative research of various successful Mexican programs. While it is tailored for a particular audience, it is a useful tool in assessing research models and designing programs using this media.

by François Querre, The Food and Agriculture Organization of the United Nations, Viale delle di Caracalla, 00100 Rome, Italy. fax: 5793152. French and English.

This manual describes the use of rural radio from research to evaluation. It uses case studies to exemplify each facet and proposes a interactive approach which establishes dialogue with rural communities, allowing them to communicate among themselves as well as with decision makers. The anecdotes are charming and effective in bringing real obstacles and solutions alive. Interesting and entertaining, this manual will be useful to governments and practitioners alike.

edited by Renata E. Seidel, HEALTHCOM, Academy for Educational Development, 1255 23rd St, NW, Suite 400, Washington, D.C. 20037 USA. Cost: $15 or free for use in developing countries.

This 250 page collection of 24 case studies and anecdotes illustrates different aspects of promoting health practices among parents, communities, healthcare providers and policy makers. It is well illustrated and includes charts and step-by-step communication methods for behavior change in health.

by Ranjit Singh, D.K. Publishers Distributors, Ltd., 1, Ansari Road, Darya Ganj, New Delhi-110002, India. tel: 3261465.

This book identifies steps in planned change through communication and an adoption process which facilitates them. Concentrating on rural areas, the particular audiences of women and youth, and communication channels and technology, the book provides a solid understanding of available communication technologies and their applications in a very organized and easy-to-follow way.

What's New, What's Coming

Conferences

The Universiti Sains Malaysia is organizing the

December 6-9, 1993 in Penang, Malaysia. The conference themes include cultural action and the limits to solidarity, the capitalist challenge, and communication and culture in a changed international order. For information, contact The Conference Secretariat, Communication Programme, School of Humanities, Universiti Sains Malaysia, 11800 Penang, Malaysia. fax: (60-4) 877736.

Freie Universität Berlin will stage an international conference on

from November 19-20, 1993 in Berlin, Germany. For information, contact Manfred Oepen, Freie Universität Berlin, FB Kommunikationswissenschaften, Projekt Kommunikation und Entwicklung, Malteserstr. 74-100, 12249 Berlin. fax: (030) 7761 046.

The 1995 International Association of Agricultural Information Specialists Congress will hold its Ninth World Congress at the **University of Melbourne** January 22-27, 1995. The theme is

For information, contact: Dr. H.S. Hawkins, President, AGRIAA, School of Agriculture and Forestry, The University of Melbourne, Parkville Victoria 3052 Australia. tel: (61) 3 344 5012; fax: (61) 3 3445570.

The Fourth SEAMEO INNOTECH International Conference will take place February 23-25, 1994 in Manila, Philippines and will focus on

Major topics of the conference include multichannel learning, and communication and alternative technologies. For information, contact: Minda C. Sutaria, SEAMEO INNOTECH, PO Box 207, U.P. Diliman, Quezon City, The Philippines. tel/fax: (632) 9210224

The SEAMEO Regional Language Centre is announcing a call for papers and an invitation to participate in its conference on

April 18-20, 1994 in Singapore. For information about topic areas and registration forms, contact The Director, SEAMEO Regional Language Centre, 30 Orange Grove Road, Singapore 1025. tel: (65) 7379044; e-mail: GBORELC@NUSVM

The conference will take place in Bangkok, Thailand, February 12 - 19, 1994. The conference themes and working groups center around women, the media and communication. For more information please contact: **International Women's Tribune Center**, 777 United Nation's Plaza, New York, NY, 10017, USA. tel: 212-687-8633; fax: 212-661-2704

The New Zealand Correspondence School, the International Council for Distance Education and the Distance Education Association of New Zealand are cosponsoring the 1994 Pacific Conference

May 8-12, 1994 in Wellington, New Zealand. The themes will include roles and appropriate technologies of distance education. For information, contact:The Conference Organizer, The New Zealand Correspondence School, Private Bag, Wellington, New Zealand. tel: 64-4-473-6841; fax: 64-4-499-4717.

Courses

Cornell University will join with Singapore's **Nanyang Technological University** to offer the annual **Communication Planning and Strategy program** June 15-July 5, 1994 in Singapore. The program is designed for professionals in any sector whose organizations need to communicate effectively with various kinds of target populations—ranging from villagers to policy makers. The course fee for the three week program is US$2250. For information, contact CPS/Cornell/NTU, Dept. of Communication, Cornell University, Kennedy Hall, Ithaca, NY, USA 14853, fax: 607-255-7905, or , Singapore, fax: (65) 791-3082.

The International Extension College announces **Distance Education for Development**, an intensive practical course April 11 - July, 1994. The course provides a thorough grounding in all aspects of distance teaching and its relevance to developing countries. For more information please contact: Short Course Assistant (IEC/SC2), Dept. of International and Comparative Education, University of London Institute of Education, 20 Bedford Way, London WC1 HAL, England. tel: 4471-6126606; fax# 44-71-6126632

The London School of Economics is offering a one year MSc program in **Media and Communications**. For information about courses, facilities, costs, financial aid, accommodations and admission, please contact: Graduate Admissions Office, London School of Economics, Houghton St., London WC2A 2AE, England. tel: 44-71-955-7159/60, fax: 44-71-831-1684

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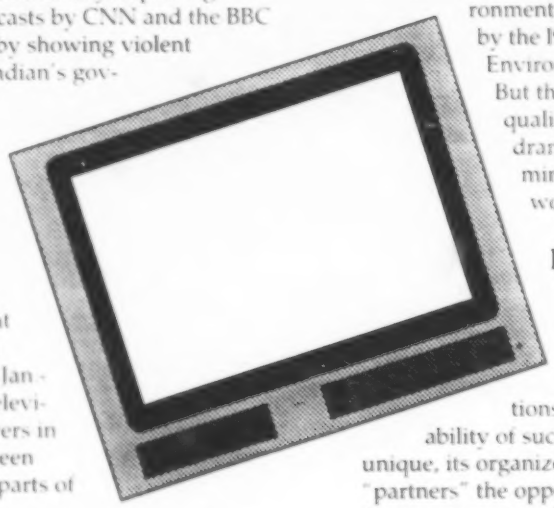
Satellite TV Broadcasting: Looking to the Future of Educational Technologies

Reuters news agency dispatch datelined New Delhi reports that *"millions of Asians now know American newsmen Ted Koppel and Dan Rather"* more intimately than their own local newsreaders.

"Satellite Television blamed for Indian riots," headlines the Indian Express newspaper on another day, reporting claims by politicians that broadcasts by CNN and the BBC helped trigger communal riots by showing violent scenes usually suppressed on Indian's government TV channel.



These reports illustrate the growing impact of satellite television systems in developing countries. While satellite broadcasting is fastest growing in Asia, where it is estimated that more than 40 broadcast satellites now cover at least parts of the region, (Asian Mass Communication Bulletin, Jan - Feb., 1993), satellite-delivered television is also gathering new viewers in Africa and systems have long been available in the Caribbean and parts of Latin America.

The prospect of satellite television penetrating poor, rural areas of many developing countries is both good and bad news. It is good if it offers new viewers broader perspectives on the world and an opportunity to view diverse programming, including those produced within their own cultures. It is bad if it promotes and raises aspirations towards the consumer lifestyle and values depicted in most imported television programming from the North.

Looking Towards the Future

The rapidly-falling cost of broadcast satellite time and technologies such as digital video compression have made it possible to conceive of a global television channel with an objective other than delivering consumers to advertisers. Media entrepreneurs with deep pockets may now be challenged by other groups concerned with the use of this powerful technology for educational and development purposes.

That is the intention of the global access television service called WETV, an initiative of Canada's International Development Research Centre (IDRC) and a number of nonprofit partners.

WETV's backers intend to create a system which would offer a balance of programming originating in both the South and the North. Financial and technical support would be provided to southern independent television producers who today have great difficulty finding air time or production funds for their programs. Through these efforts, WETV hopes to provide an outlet for cultural expression to and for societies often marginalized, even within their own region.

Officially, the objective of WETV is to support a greater global understanding of issues of environmental sustainable development as defined by the 1992 United Nations Conference on Environment and Development (UNCED). But the service would provide not only top quality documentary programming, but drama, music and other cultural programming celebrating the diversity of the world.

Funding WETV And Global Television

At a time when investment funds - public or private - are scarce, questions may be asked about the financial viability of such a service. The formula devised is unique, its organizers believe. It will include offering "partners" the opportunity to purchase blocks of air time for programming they create or commission. These could include the major United Nations agencies concerned with environment and children or national broadcast networks seeking a wider audience for their shows. Profits from such time-sales would be re-invested in production of the service's own programming, which might also be commercially sponsored.

The Service would start on a modest basis, in 1996, with four hours of programming daily and a limited number of partner countries in North and South.

The not-for-profit corporation would be headed by an international board of directors including leading figures in international development.

Its partners believe services such as WETV, dedicated to the developmental use of satellite television, can be a powerful means of raising awareness - worldwide - on issues of sustainable development and the environment. But they stress that there is a window of opportunity now for the development of such a service. Once commercial satellite operations flourish, and create a taste for programming produced originally for audiences in industrialized countries, it may be difficult to find viewers for the type of programming envisioned.

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